Getting Acquainted

Congratulations upon your selection of this CASIO watch. To get the most out of your purchase, be sure to read this manual carefully.

- This watch does not have a time zone that corresponds to the UTC offset of –3.6 hours. Because of this, the radio-controlled timekeeping and World Time functions will not display the correct time for Newfoundland, Canada.

Applications

The built-in sensors of this watch measure direction, barometric pressure, temperature and altitude. 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.
- The Moon phase indicator and tide graph data that appear on the display of this watch are not intended for navigation purposes. Always use proper instruments and resources to obtain data for navigation purposes.
- This watch is not an instrument for calculating low tide and high tide times. The tide graph of this watch is intended to provide a reasonable approximation of tidal movements 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.
- Note that CASIO COMPUTER CO., LTD. assumes no responsibility for any damage or loss suffered by you or any third party arising through the use of this product or its malfunction.

Keep the watch exposed to bright light

The electricity generated by the solar cell of the watch is stored by a built-in battery. Leaving or using the watch where it is not exposed to light causes the battery to run down. Make sure the watch is exposed to light as much as possible.

- When you are not wearing the watch on your wrist, position the face so it is pointed at a source of bright light.
- You should try to keep the watch outside of your sleeve as much as possible. Charging is reduced significantly if the face is covered only partially.

- The watch continues to operate, even when it is not exposed to light. Leaving the watch in the dark can cause the battery to run down, which will result in some watch functions being disabled. If the battery goes dead, you will have to re-configure watch settings after recharging. To ensure normal watch operation, be sure to keep it exposed to light as much as possible.

General Guide

- The illustration below shows which buttons you need to press to navigate between modes.
- In any mode, press to illuminate the display.

<table>
<thead>
<tr>
<th>Mode</th>
<th>Sensor Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>World Time Mode</td>
<td>Press A</td>
</tr>
<tr>
<td>Alarm Mode</td>
<td>Press B</td>
</tr>
<tr>
<td>Data Recall Mode</td>
<td>Press C</td>
</tr>
<tr>
<td>Receive Mode</td>
<td>Press A</td>
</tr>
</tbody>
</table>

About This Manual

- Depending on the model of your watch, display text appears either as dark figures on a light background (Module 3134), or light figures on a dark background (Module 3205). All sample displays in this manual are shown using dark figures on a light background.
- 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.

Battery charges in the light.

- The actual level at which some functions are disabled depends on the watch model.
- Frequent display illumination can run down the battery quickly and require charging. The following guidelines give an idea of the charging time required to recover from a single illumination operation.
- Approximately five minutes exposure to bright sunlight coming in through a window
- Approximately 50 minutes exposure to indoor fluorescent lighting
- Be sure to read “Power Supply” for important information you need to know when exposing the watch to bright light.

If the display of the watch is blank...

If the display of the watch is blank, it means that the watch’s Power Saving function has turned off the display to conserve power.

- See “Power Saving” for more information.

Power Supply

- Switching modes
- All functions
- Battery discharges in the dark.

- You can use buttons A, B, and C to enter a sensor mode directly from the Timekeeping Mode or from another sensor mode. To enter a sensor mode from the Tide/Moon Data, Countdown Timer, Stopwatch, World Time, Alarm, Data Recall, or Receive Mode, first enter the Timekeeping Mode and then press the applicable button.

- Rechargeable battery
- Solar cell (Converts light to electrical power)
- Bright light
- Electrical energy
- Some functions disabled
- Charge
- Discharge
- LEVEL 1
- LEVEL 2
- LEVEL 3
- LEVEL 4
- Approx. five minutes exposure to bright sunlight
- Approx. 50 minutes exposure to indoor fluorescent lighting
- Be sure to read “Power Supply” for more information.
Radio-controlled Atomic Timekeeping

This watch receives a time calibration signal and updates its time setting accordingly.
- **This watch is designed to pick up the time calibration signals transmitted in Germany (Mainflingen), England (Anthorn), the United States (Fort Collins) and Japan.**
- **See the information under “Signal Reception Troubleshooting” if you experience problems with time calibration signal reception.**

Current Time Setting

This watch adjusts its time setting automatically in accordance with a time calibration signal. You also can perform a manual procedure to set the time and date, when necessary.
- The first thing you should do after purchasing this watch is to specify your Home City (the city where you normally will use the watch). For more information, see “To specify your Home City”.
- When using the watch outside the areas covered by the time signal transmitters, you will have to adjust the current time setting manually as required. See “Timekeeping” for more information about manual time settings.
- The U.S. time calibration signal can be picked up by the watch while in North America. The term “North America” in this manual refers to the area that consists of Canada, the continental United States, and Mexico.
- Using this watch in a country covered by a time calibration that is different from the countries it supports may result in incorrect time indication due to local application of summer time, etc.

To specify your Home City

1. In the Timekeeping Mode, hold down  until the city code starts to flash, which indicates the setting screen.
2. Press (east) and (west) to select the city code you want to use as your Home City.
   - LON*: London (United Kingdom), LON (London/Anthorn)
   - ATN*: Athens, Athens (Greece)
   - HKG, TYO, SEL*: Hong Kong, Tokyo, Seoul
   - HNL: Honolulu (Hawaii), HNL (Honolulu)
   - ANC*: Anchorage, Nome
   - DEN: Denver, El Paso, Edmonton, Culiacan
   - CHI: Chicago, Houston, Dallas/Fort Worth, New Orleans, Winnipeg, Mexico City
   - NYC: New York, Detroit, Miami, Boston, Montreal
   - For full information on city codes, see the “City Code Table”.
   - Note that this watch does not have a city code that corresponds to Newfoundland.
3. Press  to exit the setting screen.
   - Normally, your watch should show the correct time as soon as you select your Home City code. If it does not, it should adjust automatically after the next auto receive operation (in the middle of the night). You also can perform manual receive or you can set the time manually.
   - The watch will receive the time calibration signal automatically from the applicable transmitter (in the middle of the night) and update its settings accordingly. For information about the relationship between city codes and transmitters, see “Time Calibration Signal Reception” and “Transmitters”.
   - See the maps under “Approximate Reception Ranges” for information about the reception ranges of the watch.
   - Under factory default settings, auto receive is turned off for all of the following city codes: HKG (Hong Kong), HNL (Honolulu), and ANC (Anchorage). For details about turning on auto receive for these city codes, see “To turn auto receive on and off”. You can disable time signal reception, if you want. See “To turn auto receive on and off” for more information.

Time Calibration Signal Reception

There are two different methods you can use to receive the time calibration signal: auto receive and manual receive.
- **Auto Receive**
  - With auto receive, the watch receives the time calibration signal automatically up to six times a day. When any auto receive is successful, the remaining auto receive operations are not performed. For more information, see “About Auto Receive”.
- **Manual Receive**
  - Manual receive lets you start a time calibration receive operation with the press of a button. For more information, see “To perform manual receive”.

Important!

- When getting ready to receive the time calibration signal, position the watch as shown in the nearby illustration, with its 12 o’clock side facing towards a window. This watch is designed to receive a time calibration signal late at night. Because of this, you should place the watch near a window as shown in the illustration when you take it off at night. Make sure there are no metal objects nearby.
- **Make sure the watch is facing the right way.**
- Proper signal reception can be difficult or even impossible under the conditions listed below.

Signal reception normally is better at night than during the day.
- Time calibration signal reception takes from two to seven minutes, but in some cases it can take as long as 14 minutes. Take care that you do not perform any button operations or move the watch during this time.
- The time calibration signal the watch will attempt to pick up depends on its current Home City code setting as shown below.

<table>
<thead>
<tr>
<th>Home City Code</th>
<th>Transmitter</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>LON, Anthorn (England)</td>
<td>60.0 kHz</td>
<td></td>
</tr>
<tr>
<td>PAR, BER, ATH</td>
<td>Mainflingen (Germany)</td>
<td>77.5 kHz</td>
</tr>
<tr>
<td>HKG*, TYO, SEL</td>
<td>Fukushima (Japan)</td>
<td>40.0 kHz</td>
</tr>
<tr>
<td>HNL*, ANC*, LAX, DEN, CHI, NYC</td>
<td>Fukuoka/Saga (Japan)</td>
<td>60.0 kHz</td>
</tr>
</tbody>
</table>

* The areas covered by the HKG, HNL, and ANC city codes are quite far from the time calibration signal transmitters, and so certain conditions may cause problems with signal reception.

Approximate Reception Ranges

**U.S. and German Signals**

**Japan Signals**

- **Signal reception may not be possible at the distances noted below during certain times of the year or day. Radio interference also may cause problems with reception.**
  - Mainflingen (Germany) or Anthorn (England) transmitters: 500 kilometers (310 miles)
  - Fort Collins (United States) transmitter: 600 miles (1,000 kilometers)
  - Fukuoka or Fukuoka/Saga (Japan) transmitters: 500 kilometers (310 miles)
- **Even when the watch is within the reception range of the transmitter, signal reception will be impossible if the signal is blocked by mountains or other geological formations between the watch and signal source.**
- **Signal reception is affected by weather, atmospheric conditions, and seasonal changes.**
About Auto Receive
The watch receives the time calibration signal automatically up to six times a day. When any auto receive is successful, the remaining auto receive operations are not performed. The reception schedule (calibration times) depends on your currently selected Home City, and whether standard time or Daylight Saving Time is selected for your Home City.

![Auto Receive Schedule Table]

Note
- When a calibration time is reached, the watch will receive the calibration signal only if it is in either the Timekeeping Mode or World Time Mode. Reception is not performed if a calibration time is reached while you are configuring settings.
- Auto receive of the calibration signal is designed to be performed early in the morning, while you sleep (provided that the Timekeeping Mode time is set correctly). Before going to bed for the night, remove the watch from your wrist, and put it in a location where it can receive the signal easily.
- The watch takes from two to 14 minutes to receive the time calibration signal whenever a calibration time is reached. Do not perform any button operation within 14 minutes before or after any one of the calibration times. Doing so can interfere with correct calibration.
- Remember that reception of the calibration signal depends on the current time in the Timekeeping Mode. The receive operation will be performed whenever the display shows one of the calibration times, regardless of whether or not the displayed time actually is the correct time.

About the Receiving Indicator
The receiving indicator shows the strength of the calibration signal being received. For best reception, be sure to keep the watch in a location where signal strength is strongest. The receiving indicator is displayed while an auto or manual receive operation is in progress.

![Receiving Indicator]

- Even in an area where signal strength is strong, it takes about 10 seconds for signal reception to stabilize enough for the receiving indicator to indicate signal strength. Use the receiving indicator as a guide for checking signal strength and for finding the best location for the watch during signal receive operations.
- Following reception of the time calibration signal and calibration of the watch’s time setting, a “settings updated” indicator ( ) will remain on the display in all modes. The settings updated indicator ( ) will not be displayed if signal reception was unsuccessful or if you adjust the current time setting manually.
- The settings updated indicator ( ) appears only when the watch is able to receive both time and date data successfully. It does not appear when only time data is received.
- The settings updated indicator ( ) indicates that at least one of the auto calibration signal receive operations was successful. Note, however, that the indicator disappears from the display each day at the start of the first auto receive operation of the day.

To perform manual receive

1. Enter the Receive Mode.
2. Place the watch on a stable surface so its 12 o’clock side is facing towards a window.
3. Hold down ( ) for about two seconds until RCI appears on the display.
   - Time calibration signal reception takes from two to seven minutes, but in some cases it can take as long as 14 minutes. Take care that you do not perform any button operations or move the watch during this time.
   - If the receive operation is successful, the reception date and time appear on the display, along with the GUT indicator. --- indicates that none of the reception operations have been successful during the current date.
   - The watch will enter the Receive Mode without changing the time setting if you press ( ) or if you do not perform any button operation for about one or two minutes.

   If the current reception fails but a previous reception was successful, the display shows the previous reception’s date and time, and the ERR indicator.

4. If no reception has been successful
   - To interrupt a receive operation and return to the Receive Mode, press ( ).

To turn auto receive on and off

1. Enter the Receive Mode.
2. In the Receive Mode, hold down ( ) until the current auto receive setting ( or ) starts to flash. This is the setting screen.
   - Note that the setting screen will not appear if the currently selected Home City is one that does not support time calibration reception.
3. Press ( ) to toggle auto receive on ( ) and off ( ).
4. Press ( ) to exit the setting screen.
   - For information about city codes that support signal receive, see “To specify your Home City”.

To check the latest signal reception results

Enter the Receive Mode.

When receive is successful, the display shows the time and date that receive was successful. --- indicates that none of the reception operations were successful.

To return to the Timekeeping Mode, press ( ).

Signal Reception Troubleshooting
Check the following points whenever you experience problems with signal reception.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Probable Cause</th>
<th>What you should do</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannot perform manual receive.</td>
<td>The watch is not in the Receive Mode.</td>
<td>Enter the Receive Mode and try again.</td>
</tr>
<tr>
<td></td>
<td>Your current Home City is not one of the following: LON, PAR, BER, ATH, HNL, SÉL, TYO, HNL, ANC, LAX, DEN, CHI, or NYC.</td>
<td>Select one of the cities to the left as your Home City.</td>
</tr>
<tr>
<td>Auto receive is turned on, but the settings updated indicator ( ) does not appear on the display.</td>
<td>You changed the time setting manually.</td>
<td>Place the watch in the Timekeeping Mode.</td>
</tr>
<tr>
<td></td>
<td>You changed the DST setting of your Home City in the World Time Mode.</td>
<td>You pressed a button while signal receive was in progress.</td>
</tr>
</tbody>
</table>

![Signal Reception Troubleshooting Table]
While the watch is taking compass readings, it displays a direction angle, a
• Compass Mode.
directions on the display. Direction readings are performed in the Digital
A built-in bearing sensor detects magnetic north and indicates one of 16
See reception.
Time setting is
• Time correction.
incorrect.
Radio-controlled Atomic Timekeeping Precautions
The settings updated indicator
• Any ongoing direction measurement operation is paused temporarily while
the watch is performing an alert operation (daily, Hourly Time Signal,
countdown timer alarm) or while illumination is turned on (by pressing (\)).
The measurement operation resumes for its remaining duration after the
operation that caused it to pause is finished.

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.
  • See “Using the Digital Compass While Mountain Climbing or Hiking” for
some real-life examples of how to use this feature.

To enter and exit the Digital Compass Mode
1. While in the Timekeeping Mode or in any of the other sensor modes, press (\) to enter the
Digital Compass Mode.
  • At this time, the watch will start a Digital Compass operation. After about two
seconds, letters appear on the display to indicate the direction that the 12 o’clock
direction of the watch is pointing.
  • The direction reading on the display is updated each second for up to 20 seconds.
  • After which measurement steps automatically
  1. Press (\) to return to the Timekeeping Mode.

To take a direction reading
1. While the watch is in the Digital Compass Mode, place it on a flat surface, or if you are
wearing the watch, make sure that your wrist is horizontal (in relation to the horizon).
  • Point the 12 o’clock position of the watch in the direction you want to measure.
  • 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 20 seconds.

Note
• Note that taking a measurement while the watch is not horizontal (in relation to the horizon) can
result in large measurement error.
• The margin of error for the angle value and the direction indicator is ±11
degrees. If the indicated direction is northwest (NW) and 315 degrees, for
example, the actual direction can be anywhere from 304 to 326 degrees.
• Any ongoing direction measurement operation is paused temporarily while
the watch is performing an alert operation (daily, Hourly Time Signal,
countdown timer alarm) or while illumination is turned on (by pressing (\)).
The measurement operation resumes for its remaining duration after the
operation that caused it to pause is finished.

The following table shows the meanings of each of the direction abbreviations that appear on the display.

Directions and Abbreviations

<table>
<thead>
<tr>
<th>Direction</th>
<th>Meaning</th>
<th>Abbreviation</th>
<th>Direction</th>
<th>Meaning</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>North</td>
<td>N</td>
<td>NE</td>
<td>North east</td>
<td>NE</td>
</tr>
<tr>
<td>E</td>
<td>East</td>
<td>E</td>
<td>SE</td>
<td>Southeast</td>
<td>S</td>
</tr>
<tr>
<td>S</td>
<td>South</td>
<td>S</td>
<td>SW</td>
<td>Southwest</td>
<td>W</td>
</tr>
<tr>
<td>W</td>
<td>West</td>
<td>W</td>
<td>NW</td>
<td>Northwest</td>
<td>S</td>
</tr>
<tr>
<td>NW</td>
<td>Northwest</td>
<td>NW</td>
<td>SSW</td>
<td>South-southwest</td>
<td>W</td>
</tr>
<tr>
<td>SSW</td>
<td>South-southwest</td>
<td>S</td>
<td>SSE</td>
<td>South-east</td>
<td>W</td>
</tr>
<tr>
<td>SSE</td>
<td>South-east</td>
<td>E</td>
<td>NNW</td>
<td>North-northwest</td>
<td>W</td>
</tr>
<tr>
<td>NNW</td>
<td>North-northwest</td>
<td>E</td>
<td>ENE</td>
<td>East-north-east</td>
<td>N</td>
</tr>
<tr>
<td>ENE</td>
<td>East-north-east</td>
<td>N</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

• For further information, see “Important!” under “Time Calibration Signal Reception” and “Radio-controlled Atomic Timekeeping Precautions”.

Accurate readings also are impossible indoors, especially inside ferro-
cement materials, etc.

• Accurate readings also are impossible indoors, especially inside ferro-
cement materials, etc.

Calibrating the Bearing Sensor
You should calibrate the bearing sensor whenever you feel that the direction
readings being produced by the watch are off. Three different calibration
methods are available: magnetic declination correction, bidirectional
calibration, and northerly calibration.

Magnetic Declination Correction
With magnetic declination correction, you input a magnetic declination
angle (difference between magnetic north and true north), which allows the
watch to indicate true north.

You can perform this procedure when the magnetic declination angle is
indicated on the map you are using.

Note that you can input the declination angle in degrees units only, so you
may need to round off the value specified on the map. If your map indicates
the declination angle as 7.4°, you should input 7°. In the case of 7.6° input
8°, for 7.5° you can input 7° or 8°.

Bidirectional Calibration and Northerly Calibration
Bidirectional calibration and northerly calibration calibrate the accuracy of
the direction sensor in relation to magnetic north.

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 becomes 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).

Digital Compass
This watch features a built-in magnetic bearing sensor that detects terrestrial
magnetism. This means that north is indicated by this watch is magnetic north,
which is somewhat different from true pole 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 also should remember that some
cards 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 also are 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”.

- Directions and abbreviations are shown for other important information about
taking direction readings.

*Note that taking a measurement while the watch is not horizontal (in relation to the horizon) can result in large measurement error.
*The margin of error for the angle value and the direction indicator is ±11 degrees.
*If the indicated direction is northwest (NW) and 315 degrees, for example, the actual direction can be anywhere from 304 to 326 degrees.
*Any ongoing direction measurement operation is paused temporarily while the watch is performing an alert operation (daily, Hourly Time Signal, countdown timer alarm) or while illumination is turned on (by pressing (\)).
The measurement operation resumes for its remaining duration after the operation that caused it to pause is finished.
*The following table shows the meanings of each of the direction abbreviations that appear on the display.

- Directions and abbreviations are shown for other important information about taking direction readings.

*Note that taking a measurement while the watch is not horizontal (in relation to the horizon) can result in large measurement error.
*The margin of error for the angle value and the direction indicator is ±11 degrees.
*If the indicated direction is northwest (NW) and 315 degrees, for example, the actual direction can be anywhere from 304 to 326 degrees.
*Any ongoing direction measurement operation is paused temporarily while the watch is performing an alert operation (daily, Hourly Time Signal, countdown timer alarm) or while illumination is turned on (by pressing (\)).
The measurement operation resumes for its remaining duration after the operation that caused it to pause is finished.
*The following table shows the meanings of each of the direction abbreviations that appear on the display.

- Directions and abbreviations are shown for other important information about taking direction readings.
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
existing 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 magnetic declination correction

1. In the Digital Compass Mode, hold down \( \text{D} \) for about two seconds until the magnetic
declination angle and magnetic declination angle direction values start to flash on the
display. This is the setting screen.
2. Use (\( \text{H} \)) and (\( \text{L} \)) to change the magnetic
declination angle and magnetic declination angle direction settings.
   • You can select a value within the range of
     W90° to E90° with these settings.
   • The following contains magnetic declination angle direction settings.
     OFF: No magnetic declination correction
     performed. The magnetic declination angle with this setting is 0°.

E: When magnetic north is to the east (east declination)
W: When magnetic north is to the west (west declination)

• You can turn off (OFF): magnetic declination correction (which effectively
  makes the magnetic declination angle: 0°) by pressing (\( \text{A} \)) and (\( \text{C} \)) at the
  same time.
• The illustration, for example, shows the value you should input and the
direction setting you should select when the map shows a magnetic
deciliation of 1° West.
3. When the setting is the way you want, press (\( \text{E} \)) to exit the setting 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.
- Make sure that you do not move the watch while calibration of either
direction is in progress.
- 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 bidirectional calibration

1. In the Digital Compass Mode, hold down \( \text{D} \) for about two seconds until the magnetic
declination angle and magnetic declination angle direction values start to flash on the
display. This is the setting screen.
2. Press (\( \text{E} \)) to display the bidirectional
   calibration screen.
   • At this time, the 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 (\( \text{E} \)) to calibrate the first direction.
   • \( \text{ERR} \) is shown on the display while calibration is being performed. When
     calibration is successful, the display will show OK and \( \text{D} \), and the northerly
     pointer flashes at the 12 o'clock position to indicate that the watch
     is ready for calibration of the second direction.
4. Rotate the watch 180 degrees.
5. Press (\( \text{E} \)) again to calibrate the second direction.
   • \( \text{ERR} \) is shown on the display while calibration is being performed. When
     calibration is successful, the display will show OK and the Digital Compass
     Mode (showing the angle value) screen.
   • If \( \text{ERR} \) appears and then changes to \( \text{ERR} \) (error) on the calibration
     screen, it means that there is something wrong with the sensor. When
     \( \text{ERR} \) disappears after about one second, try performing the calibration
     again. If \( \text{ERR} \) keeps appearing, contact your original dealer or nearest
     authorized CASIO distributor to have the watch checked.

To perform northerly calibration

1. In the Digital Compass Mode, hold down \( \text{D} \) for about two seconds until the magnetic
declination angle and magnetic declination angle direction values start to flash on the
display. This is the setting screen.
2. Press (\( \text{E} \)) twice to display the northerly
   calibration screen.
   • At this time, \( \text{ERR} \) (northern)
     appears on the display.
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 (\( \text{E} \)) to start the calibration operation.
   • \( \text{ERR} \) is shown on the display while calibration is being performed. When
     calibration is successful, the display will show OK and the Digital Compass
     Mode (with \( \text{D} \) set to the angle value) screen.
   • If \( \text{ERR} \) appears and then changes to \( \text{ERR} \) (error) on the calibration
     screen, it means that there is something wrong with the sensor. When
     \( \text{ERR} \) disappears after about one second, try performing the calibration
     again. If \( \text{ERR} \) keeps appearing, contact your original dealer or nearest
     authorized CASIO distributor to have the watch checked.

Using the Digital Compass While Mountain Climbing or Hiking

This section describes three real-life situations where you could use the
watch’s built-in digital compass.

1. To set a map and find your current location
   Having an idea of your current location is important when mountain
   climbing or hiking. To do this, you need to “set the map”, which means to
   align the map so the directions indicated on it are aligned with the actual
   directions of your location. Basically what you are doing is aligning north
   on the map with north as indicated by the watch.
2. To find the bearing to an objective
   • To determine the direction angle to an objective on a map and head in that
direction
   • To set a map and find your current location

To set a map and find your current location

1. With the watch on your wrist, position it so the
   face is horizontal.
2. In the Timekeeping, Digital Compass, Barometer/Thermometer, or Altimeter Mode,
   press (\( \text{E} \)) to take a compass reading.
   • The reading will appear on the display after about two seconds.
3. Rotate the map without moving the watch so
   the northerly direction indicated on the map
   matches north as indicated by the watch.
   • If the watch is configured to indicate
     magnetic north, align the map’s magnetic
     north with the watch indication. If the watch
     has been configured with a declination to
     correct to true north, align the map’s true
     north with the watch indication.
   • This will position the map in accordance
     with your current location.
4. Determine your location as you check the
   geographic contours around you.

To find the bearing to an objective

1. Take a compass reading and then set the map
   so its northerly indication is aligned with north
   as indicated by the watch, and determine your
   current location.
   • See “To set a map and find your current
     location” for information about how to
     perform the above step.
2. Set the map so the direction you want to travel
   on the map is pointed in front of you.
3. With the watch on your wrist, position it so the
   face is horizontal.
4. In the Timekeeping, Digital Compass, Barometer/Thermometer, or Altimeter Mode,
   press (\( \text{E} \)) to take a compass reading.
   • The reading will appear on the display after
     about two seconds.
5. Still holding the map in front of you, turn your
   body until north as indicated by the watch
   and the northerly direction on the map are aligned.
   • This will position the map relative to your
     current location, so the bearing to
     your objective is straight ahead of you.

To determine the direction angle to an objective on a map and head
in that direction

Note
- The following procedure is possible only with a
  watch that has a rotary bezel.
1. Take a compass reading and then set the map
   so its northerly indication is aligned with north
   as indicated by the watch, and determine your
   current location.
   • See “To set a map and find your current
     location” for information about how to
     perform the above step.
2. As shown in the illustration to the left, change
   your position so you (and the 12 o'clock position
   of the watch) are pointed in the direction
   of objective, while keeping the map aligned with
   the readings being produced by the watch.
Barometric pressure indicates changes in the atmosphere. By monitoring these changes you can predict the weather with reasonable accuracy. This watch takes barometric pressure measurements automatically every two hours (at the top of each even-numbered hour), regardless of its current mode. Measurement results are used to produce barometric pressure graph and barometric pressure differential pointer readings.

The barometric pressure graph shows readings of previous measurements for up to 20 hours. The horizontal axis of the graph represents time, with each dot standing for two hours. The rightmost dot represents the most recent reading. The vertical axis of the graph represents barometric pressure, with each dot standing for the relative difference between its reading and that of the dots next to it. Each dot represents 1 hPa.

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
When mountain climbing or hiking, conditions or geographic contours may make it impossible for you to advance in a straight line. If this happens, return to step 1 and save a new direction to the objective.

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

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

To take barometric pressure and temperature readings
Pressing (B) in the Timekeeping, Digital Compass, Barometer/Thermometer, or Altimeter Mode and starts barometric pressure and temperature measurements automatically.

• It can take up to four or five seconds for the barometric pressure reading to appear after you enter the Barometer/Thermometer Mode.

• Barometric pressure is displayed in units of 1 hPa (or 0.05 inHg).

• The displayed barometric pressure value changes to - - - - hPa (or inHg) if a measured barometric pressure falls outside the range of 260 hPa to 1100 hPa (7.65 inHg to 32.45 inHg). The barometric pressure value will reappear as soon as the measured barometric pressure is within the allowable range.

• Temperature is displayed in units of 0.1°C (or 0.2°F).

• 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 reappear as soon as the measured temperature is within the allowable range.

• In some areas, barometric pressure is expressed in millibars (mb) instead of hectopascals (hPa). It really makes no difference, because 1 hPa = 1 mb.

• You can select either hectopascals (hPa) or inchesHg (inHg) as the display unit for the measured barometric pressure, and Celsius (°C) or Fahrenheit (°F) as the display unit for the measured temperature value. See "To select the temperature, barometric pressure, and altitude units".

• See "Barometer and Thermometer Precautions" for important precautions.

Barometric Pressure Graph

Barometric pressure indicates changes in the atmosphere. By monitoring these changes you can predict the weather with reasonable accuracy. This watch takes barometric pressure measurements automatically every two hours (at the top of each even-numbered hour), regardless of its current mode. Measurement results are used to produce barometric pressure graph and barometric pressure differential pointer readings.

The barometric pressure graph shows readings of previous measurements for up to 20 hours. The horizontal axis of the graph represents time, with each dot standing for two hours. The rightmost dot represents the most recent reading. The vertical axis of the graph represents barometric pressure, with each dot standing for the relative difference between its reading and that of the dots next to it. Each dot represents 1 hPa.

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 barometric pressure 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.

About Barometric and Temperature Measurements
• Barometric pressure and temperature measurement operations are performed as soon as you enter the Barometer/Thermometer Mode. After that, barometric pressure and temperature measurements are taken every five seconds.

• You also can perform a barometric pressure and temperature measurement at any time by pressing (B) in the Barometer/Thermometer Mode.

Altimeter
The watch’s altimeter uses a pressure sensor to detect current air pressure, which is then used to estimate the current altitude based on ICAO (International Civil Aviation Organization) pressure values. You also can specify a reference altitude, which the watch will use to calculate your current altitude based on the value you specify. Altimeter functions also include storage of measurement data in memory.

Important!
• This watch estimates altitude based on air pressure. This means that altitude readings for the same location may vary if air pressure changes.

• The semiconductor pressure sensor used by the watch for altitude measurements also is affected by temperature. When taking altitude measurements, make sure the watch is not subjected to temperature changes.

• To avoid the effect of sudden temperature changes during measurement, keep the watch on your wrist in direct contact with your skin.

• Do not rely upon this watch for altitude measurements or perform button operations while sky diving, hang gliding, or paragliding, while riding a gyrocopter, glider, or any other aircraft, or while engaging in any other activity where there is the chance of sudden altitude changes.

• Do not use this watch for measuring altitude in applications that demand professional or industrial level precision.

• Remember that the air inside of a commercial aircraft is pressurized. Because of this, the readings produced by this watch will not match the altitude readings announced or indicated the flight crew.

How the Altimeter Measures Altitude
The altimeter can measure altitude based on its own preset values, or a reference altitude specified by you.

When you measure altitude based on preset values
Data produced by the watch’s barometric pressure sensor is converted to approximate altitude based on ICAO (International Civil Aviation Organization) conversion values stored in watch memory.
When you measure altitude using a reference altitude specified by you
After you specify a reference altitude, the watch uses that value to convert the
current measured barometric pressure value to altitude.
- When mountain climbing, you can set the reference value in accordance with a marker
along the way or altitude information from a map. After that, the altitude readings
produced by the watch will be more accurate than they would without a reference altitude.

Displaying Your Current Altitude
You can use the procedure described in this section to display your current
altitude. If you leave the watch in the Altimeter Mode, it will update the
displayed altitude value regularly, and indicate reading-to-reading changes in
the altitude graph at the top of the display.

Important!
- The procedure in this section simply displays values indicating your current altitude, without storing them in watch memory. For information about recording altitude readings in watch memory, see "Saving Altitude Data".

To display your current altitude

1. Press A in the Timekeeping Mode or in any of the other sensor modes to enter the
   Altimeter Mode.
- The watch will start altitude measurement automatically, and display the result.
  It can take up to four or five seconds for the altitude reading to appear after you enter the
  Altimeter Mode.
2. Leave the watch in the Altimeter Mode if you want the displayed altitude value and the
   altitude graph contents to be updated at regular intervals.
- Readings are taken at five-second intervals for the first three minutes
   after you enter the Altimeter Mode. After that, readings are taken at two-
   minute intervals.
- If you want to restart the altitude measurement operation at any point, press A.
3. To stop the altitude measurement operation, press E to exit the Altimeter Mode.

Notes
- Normally, displayed altitude values are based on the watch's preset conversion values. You also can specify a reference altitude, if you want. See "Specifying a Reference Altitude".
- Altitude is displayed in units of 5 meters (20 feet).
- The maximum 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 by you.
- 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 measurement unit for displayed altitude values to either
  meters (m) or feet (ft). See "To select the temperature, barometric pressure,
  and altitude units".

Saving Altitude Data
The watch automatically keeps track of the high altitude achieved to date. You also can save altitude readings with the touch of a button.
- You can recall and view altitude data using the Data Recall Mode. For details, see "Recalling Altitude Data".

Automatic High Altitude Record
Whenever an altitude measurement in the Altimeter Mode is greater than the
currently stored high altitude value, the watch will replace the old value with
the new measurement automatically, along with the reading date and time. This feature is always enabled and cannot be turned off.
- If the current reading is the same as the existing high altitude value, the
  older value will be retained.

Saving an Altitude Reading
Perform the following procedure whenever you want to save an altitude reading.

To save an altitude reading

1. Press A to enter the Altimeter Mode.
2. Hold down A until REC flashes on the
   display.
- At this time the watch will beep and the
  current altitude reading value will be saved
  along with the reading date (month - day)
  and time.
3. REC will stop flashing and the watch will
   return to the Altimeter Mode automatically
   after data save is complete.
- Memory can store up to 24 altitude records. Storing a new reading while
there are already 24 in memory will delete the oldest record currently in
memory to make room for the new reading.

Specifying a Reference Altitude
After you specify 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 E for about
two seconds until either OFF or the current
reference altitude value starts to flash. This is
the setting screen.
2. Press A (±) or C (–) to change the current
reference altitude value by 5 meters (or 20 feet).
- You can set the reference altitude within
  the range of –10,000 to 10,000 meters (~-32,800
to 32,800 feet).
- Pressing A and C at the same time returns to OFF (no reference
  altitude), so the watch performs air pressure to altitude conversions
  based on preset data only.
3. Press E to exit the setting screen.

Altitude graph

The altitude graph shows Altimeter Mode measurement results.
- The vertical axis of the graph represents
  altitude, and each dot stands for 10 meters (40
  feet).
- The horizontal axis represents time, and the flashing dot in the rightmost
column indicates the latest measurement result. For the first three minutes,
each dot represents five seconds. After that, each dot represents two
minutes.
- An out of range measurement result or a measurement error will cause the
column of dots for that measurement to be blank (skipped).

Recalling Altitude Data
In the Data Recall Mode, you can recall and view altitude reading records you
stored in the Altimeter Mode, as well as the high altitude record.
- All of the operations in this section are performed in the Data Recall Mode.

Data Screens
The following explains the contents of each of the screens that appear in the
Data Recall Mode.

Note
- While the altitude record or high screen is displayed, the bottom
  part of the display alternates between the measurement date (month and
day) and measurement time, at 1-second intervals.
- An out of range measurement result or a measurement error will cause the
column of dots for that measurement to be blank (skipped).
- The measurement range for altitude is
  3,000 to 12,000 meters (~9,800 to
  39,400 feet).

To view altitude reading records and the high altitude record
1. Enter the Data Recall Mode.
- After about one second a record with MAX on the top will appear. This is
  the high altitude record.
2. Use A (±) and C (–) to scroll through the other altitude reading records.

To delete all altitude data currently in memory
1. In the Data Recall Mode, hold down E until
   CLR flashes on the display and the watch
   beeps twice.
- Releasing E at any time while CLR is
  flashing on the display will cancel the delete
  operation.
2. Keep E depressed for two seconds.
- The watch will beep to indicate that all of the
  altitude data stored in watch memory (including
  readings you stored and the high altitude
  value) is deleted.
Tide/Moon Data

In the Tide/Moon Data Mode, you can see the current tide and the current date’s Moon phase for your Home City. You can specify a date and view tide and Moon data for that date.

- **See “Moon Phase Indicator” for information about the Moon phase indicator and “Tide Graph” for information about the tide graph.**
- **All of the operations in this section are performed in the Tide/Moon Data Mode.**

Tide Data

The Tide Graph that appears first when you enter the Tide/Moon Data Mode shows the data at 6:00 a.m. for your currently selected Home City on the current date, according to the Timekeeping Mode. After that you can specify another date or time.

- If the tide data is not correct, check your Timekeeping Mode settings and correct them if necessary.
- If you feel that the information shown by the Tide Graph is different from actual tide conditions, you need to adjust the high tide time. See “Adjusting the High Tide Time” for more information.

Moon Data

The Moon phase and Moon age information that appears first when you enter the Tide/Moon Data Mode shows the data at noon for your currently selected Home City on the current date, according to the Timekeeping Mode. After that you can specify another date to view data.

- If the Moon data is not correct, check your Timekeeping Mode settings and correct them if necessary.
- If the Moon phase indicator shows a phase that is a mirror image of the actual moon phase in your area, you can use the procedure under “Reversing the Displayed Moon Phase” to change it.

To view Moon Data for a particular date, or Tide Data for a particular date and time

1. In the Tide/Moon Data Mode, use (1) (+) and (2) (−) to select the date you want.
2. After you select a date, the watch starts to calculate Moon and tide data for the date you selected. The calculation operation takes about 10 seconds, and is indicated by movement in the Moon Phase indicator and the Tide Graph on the display. You can use (1) and (2) to change to another date while a calculation operation is in progress.
3. After calculation is complete, the Moon information (Moon age and phase) and tide information (current tide level and tide range) will be displayed for the date you selected.

To adjust the high tide time

Use the following procedure to adjust the high tide time within a particular date. You can find out high tide information for your area from a tide table, the Internet, or your local newspaper.

1. In the Tide/Moon Data Mode, use (1) (+) and (2) (−) to select the date you want.
2. After you select a date, the watch starts to calculate Moon and tide data for the date you selected. The calculation operation takes about 10 seconds, and is indicated by movement in the Moon Phase indicator and the Tide Graph on the display. You can use (1) and (2) to change to another date while a calculation operation is in progress.
3. After calculation is complete, the Moon information (Moon age and phase) and tide information (current tide level and tide range) will be displayed for the date you selected.

Reversing the displayed Moon phase

The left-right (east-west) appearance of the Moon depends on whether the Moon is north of you (northerly view) or south of you (southerly view) as you view it. You can use the procedure below to reverse the displayed Moon phase so it matches the actual appearance of the Moon where you are located.

- To determine the viewing direction of the Moon, use a compass to take a direction reading of the Moon at its meridian passage.
- For information about the Moon phase indicator, see “Moon Phase Indicator”.

Adjusting the high tide time

Use the following procedure to adjust the high tide time within a particular date. You can find out high tide information for your area from a tide table, the Internet, or your local newspaper.

1. In the Tide/Moon Data Mode, use (1) (+) and (2) (−) to select the date you want.
2. While the Moon information (Moon age and phase) and tide information (current tide level and tide range for the current date) are displayed, you can press (1) (+) to advance the displayed tide range by one hour.
3. You also can use (1) (+) and (2) (−) to change the date.
4. Update of the Moon Phase indicator and the Tide Graph is stopped while a countdown beeper operation is in progress.

Countdown Timer

The countdown timer can be set within a range of one minute to 60 minutes. An alarm sounds when the timer reaches zero. The press of a button will start the countdown timer from the currently set start time, and a progress beeper sounds to keep you informed of the current status of the countdown. These features make it possible to use the watch for yacht racing.

- All of the operations in this section are performed in the Countdown Timer Mode, which you enter by pressing (3).

Configuring Countdown Timer Settings

The following are the settings you should configure before actually using the countdown timer.

- **Countdown start time and reset time**
  - Progress beeper (on/off)
  - See “To configure countdown timer settings” for information about setting up the timer.
- **For details about the progress beeper, see “Progress Beeper”.**

Reset Time

You can set a “reset time”, which is a kind of alternate countdown start time you can recall with the press of a button any time a countdown operation is in progress.

Countdown Timer Beepers

The watch beeps at various times during a countdown so you can keep informed about the countdown status without looking at the display. The following describes the types of beeper operations the watch performs during a countdown.

- Pressing (1) and (2) at the same time while the time adjustment screen is displayed (steps 2 through 5 above) will return the high tide time to its initial factory default setting.
- The high tide time setting is not affected by the DST (summer time) setting of the Timekeeping Mode.
- On some days, there are two high tides. With this watch, you can adjust the first high tide time only. The second high tide time for that day is adjusted automatically based on the first high tide time.
Countdown End Beep
The watch beeps each second of the final 10 seconds before a countdown reaches zero, and at zero. The first five beeps (seconds 5 through 1) are higher pitched than the final five beeps (seconds 5 through 1). The watch emits a longer beep to signal when the countdown reaches zero.

Progress Beep
The progress beep actually includes two beeps: a reset time beeper and a reset period beeper.
- Note that the reset time beeper and reset period beeper operate only while the progress beeper is turned on. For more information, see "To turn the progress beeper on and off".

Reset Time Beep
The reset time beeper is similar to the countdown end beeper. The watch beeps each second of the final 10 seconds before the countdown reaches the reset time.

Reset Period Beep
The reset period is the portion of the countdown between the reset time and zero. While timing is in the reset period, the watch will beep four times at the top of each minute and 10 seconds before the end of the countdown.

Countdown Timer Examples
Countdown start time: 10 minutes; Reset time: 5 minutes

Progress beeper: On

Stop the countdown operation and display the reset time setting. (Press B.)

Display the countdown start time (Press A.)

Resume a stopped countdown operation (Press A.)

Stop the countdown operation (Press B.)

To configure countdown timer settings
1. While the countdown on time is displayed on the display in the Countdown Timer Mode, hold down B. until the countdown start time setting starts to flash, which indicates the setting screen.
   • If the countdown start time is not displayed, use the procedure under "To use the countdown timer" to display it.
2. Press C. to move the flashing in the sequence shown below to select other settings.
   A. Start Time
   B. Reset Time
   C. Reset Period
   D. Countdown End Beep

3. When the setting you want to change is flashing, use A. and B. to change it as described below.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Screen</th>
<th>Button Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Time</td>
<td>Stop Time</td>
<td>Use A. (+) and B. (−) to change the setting. You can set a start time in the range of 1 to 60 minutes in 1-minute increments.</td>
</tr>
<tr>
<td>Reset Time</td>
<td>Reset Time</td>
<td>Use A. (+) and B. (−) to change the setting. You can set a reset time in the range of 1 to 5 minutes in 1-minute increments.</td>
</tr>
</tbody>
</table>

4. Press C. to exit the setting screen.
   • The reset time setting must be less than the countdown start time setting.

To turn the progress beeper on and off
Pressing B. while the countdown start time is on the display or while a countdown timer operation is in progress in the Countdown Timer Mode toggles progress beeper operation on (Press B. displayed) and off (Press B. displayed).

To use the countdown timer
In the Countdown Timer Mode, press A. to start the countdown timer.
   • The countdown timer measurement operation continues even if you exit the Countdown Timer Mode.
   • The table below describes button operations you can perform to control countdown operations.

<table>
<thead>
<tr>
<th>To do this:</th>
<th>Do this:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stop the countdown operation</td>
<td>Press B.</td>
</tr>
<tr>
<td>Resume a stopped countdown operation</td>
<td>Press A. again.</td>
</tr>
<tr>
<td>Display the countdown start time</td>
<td>While the countdown is stopped, press C.</td>
</tr>
<tr>
<td>Stop the countdown operation and display the reset time</td>
<td>Press C.</td>
</tr>
<tr>
<td>Start the countdown from the displayed reset time</td>
<td>Press A.</td>
</tr>
</tbody>
</table>
Alarms

You can set five independent daily alarms. When an alarm is turned on, the alarm tone sounds when the alarm time is reached. You also can turn on an Hourly Time Signal, which will cause the watch to beep twice every hour on the hour.

- The alarm number (AL1 through AL5) indicates an alarm screen. SIG is shown when the Hourly Time Signal screen is on the display.
- When you enter the Alarm Mode, the data you were viewing when you last exited the mode appears first.
- All of the operations in this section are performed in the Alarm Mode, which you enter by pressing ③.

To set an alarm

1. In the Alarm Mode, use ① and ② to scroll through the alarm screens until the one whose time you want to set is displayed.
2. Hold down ④ until the hour setting of the alarm time start to flash, which indicates the setting screen.
3. This automatically turns on the alarm.
4. 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 ⑤ to exit the setting screen.

Alarm Operation

The alarm sounds in all modes at the preset time for about 10 seconds, or until you stop it by pressing any button.

To test the alarm

In the Alarm Mode, hold down ① to sound the alarm.

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

1. In the Alarm Mode, use ① and ② to scroll through the alarm screens until the one whose alarm you want to select is set.
2. When the alarm or the Hourly Time Signal you want is selected, press ⑤ to turn it on (ON) and off (OFF).
3. Indicates alarm is ON.
4. Indicates Hourly Time Signal is ON.
5. If any alarm is off, the alarm off indicator is shown on the display in all modes.

Illumination

The display of the watch is illuminated using an EL (electro-luminescent) panel for easy reading in the dark. The watch’s auto light switch turns on illumination automatically when you angle the watch towards your face.

- The auto light switch turns on based on sensor measurement data, and during bearing sensor calibration.
- Illumination is disabled during calibration signal reception, while configuring sensor measurement mode settings, and during bearing sensor calibration.

About the Auto Light Switch

Turning on the auto light switch causes illumination to turn on, whenever you position your wrist as described below in any mode.

- The auto light switch is always disabled, regardless of its on/off setting, when any one of the following conditions exists.
  - While an alarm is sounding
  - During sensor measurement
  - While a bearing sensor calibration operation is being performed in the Digital Compass Mode
  - While a receive operation is in progress in the Receive Mode
  - During tide data calculation

Illumination Precautions

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 startle 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 Mode, hold down ④ for about three seconds to toggle the auto light switch on (A.EL displayed) and off (A.EL not displayed).

- The auto light switch on indicator (A.EL) is on the display in all modes while the auto light switch is turned on.
- The auto light switch turns off automatically whenever battery power drops to Level 4.
- Illumination may not turn off right away if you raise the watch to your face while a barometric pressure or altitude measurement operation is in progress.

Questions & Answers

Question: What causes incorrect direction readings?

Answer:

- Incorrect bidirectional calibration. Perform bidirectional calibration.
- 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 is interfering with detection of terrestrial magnetism. Move away from the high-tension wires and try again.

Question: Why am I having problems taking direction readings indoors?

Answer: A TV, personal computer, speakers, or some other object interfering with terrestrial magnetism readings. Move away from the object causing the interference or take the direction reading outdoors. Indoor 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 causes incorrect direction readings?

Answer: Incorrect bidirectional calibration. Perform bidirectional calibration.

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 startle 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 Mode, hold down ④ for about three seconds to toggle the auto light switch on (A.EL displayed) and off (A.EL not displayed).

- The auto light switch on indicator (A.EL) is on the display in all modes while the auto light switch is turned on.
- The auto light switch turns off automatically whenever battery power drops to Level 4.
- Illumination may not turn off right away if you raise the watch to your face while a barometric pressure or altitude measurement operation is in progress.
To give altitude measurement priority, leave the watch on your wrist or in measurements. In the case of altitude measurement, on the other hand, it is better to different conditions for best results. With temperature measurement, it is best time, you should remember that each of these measurements requires

Though you can perform altitude and temperature measurements at the same

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 requires 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.

• To give attitude 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 hang 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 affect pressure sensor readings momentarily.

Power Supply

This watch is equipped with a solar cell and a special rechargeable battery (secondary battery) that is charged by the electrical power produced by the solar cell. The illustration shown below shows how you should position the watch for charging.

Example: Orient the watch so its face is pointing at a light source.
• The illustration shows how to position a watch with a resin band.
• Note that charging efficiency drops when any part of the solar cell is blocked by clothing, etc.
• You should try to keep the watch outside of your sleeve as much as possible. Charging is reduced significantly if the face is covered only partially.

Important!
• Storing the watch for long periods in an area where there is no light or wearing it in such a way that it is blocked from exposure to light can cause rechargeable battery power to run down. Be sure that the watch is exposed to bright light whenever possible.
• This watch uses a special rechargeable battery to store power produced by the solar cell, so regular battery replacement is not required. However, after very long use, the rechargeable battery may lose its ability to achieve a full charge. If you experience problems getting the special rechargeable battery to charge fully, contact your dealer or CASIO distributor about having it replaced.
• Never try to remove or replace the watch’s special battery yourself. Use of the wrong type of battery can damage the watch.
• All data stored in memory is deleted, and the current time and all other settings return to their initial factory defaults whenever battery power drops to Level 5 and when you have the battery replaced.
• Turn on the watch’s Power Saving function and keep it in an area normally exposed to bright light when storing it for long periods. This helps to keep the rechargeable battery from going dead.

Battery Power Indicators

The battery power indicator on the display shows you the current status of the rechargeable battery’s power.

<table>
<thead>
<tr>
<th>Level</th>
<th>Battery Power Indicator</th>
<th>Function Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H</td>
<td>All functions enabled.</td>
</tr>
<tr>
<td>2</td>
<td>L</td>
<td>All functions enabled.</td>
</tr>
<tr>
<td>3</td>
<td>Low</td>
<td>Auto and manual receive, illumination, beeper, and sensor operation disabled.</td>
</tr>
<tr>
<td>4</td>
<td>Charge Soon Alert</td>
<td>Except for timekeeping and the C (charge) indicator, all functions and display indicators disabled.</td>
</tr>
<tr>
<td>5</td>
<td>All functions disabled.</td>
<td></td>
</tr>
</tbody>
</table>

The flashing LO/Charge Soon Alert indicator at Level 3 tells you that battery power is very low, and that exposure to bright light for charging is required as soon as possible. At Level 5, all functions are disabled and settings return to their initial factory defaults. Once the battery reaches Level 5 (indicated by M indicator) after falling to Level 5, reconfigure the current time, date, and other settings.

• Display indicators reappear as soon as the battery is charged from Level 5 to Level 2.
• Leaving the watch exposed to direct sunlight or some other very strong light source can cause the battery power indicator to show a reading temporarily that is higher than the actual battery level. The correct battery level should be indicated after a few minutes.

• Performing multiple sensor, illumination, or beeper operations during a short period may cause all of the battery indicators (L, M, H) to flash on the display. Illumination, alarm, countdown timer alarm, hourly time signal, and sensor operations will be disabled until battery power recovers. After some time, battery power will recover and battery indicators (L, M, H) will disappear, indicating that the above functions are enabled again.

• Even if battery power is at Level 1 or Level 2, the Digital Compass Mode, Barometer/Thermometer Mode, or Altimeter Mode sensor may be disabled if there is not enough voltage available to power it sufficiently. This is indicated by battery indicators (L, M, H) on the display.
• If battery indicators (L, M, H) appears frequently, it probably means that remaining battery power is low. Leave the watch in bright light to allow it to charge.

Charging Precautions

Certain charging conditions can cause the watch to become very hot. Avoid leaving the watch in the areas described below whenever charging its rechargeable battery. Also note that allowing the watch to become very hot can cause its liquid crystal display to black out. The appearance of the LCD should become normal again when the watch returns to a lower temperature.

Warning! Leaving the watch in bright light to charge its rechargeable battery can cause it to become quite hot. Take care when handling the watch to avoid burn injury. The watch can become particularly hot when exposed to the following conditions for long periods.
• On the dashboard of a car parked in direct sunlight
• Too close to an incandescent lamp
• Under direct sunlight

Charging Guide

After a full charge, timekeeping remains enabled for up to about five months. The following table shows the amount of time the watch needs to be exposed to light each day in order to generate enough power for normal daily operations.

<table>
<thead>
<tr>
<th>Exposure Level (Brightness)</th>
<th>Approximate Exposure Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor Sunlight (50,000 lux)</td>
<td>5 minutes</td>
</tr>
<tr>
<td>Sunlight Through a Window (10,000 lux)</td>
<td>24 minutes</td>
</tr>
<tr>
<td>Daylight Through a Window on a Cloudy Day (5,000 lux)</td>
<td>48 minutes</td>
</tr>
<tr>
<td>Indoor Fluorescent Lighting (300 lux)</td>
<td>8 hours</td>
</tr>
</tbody>
</table>

• For details about the battery operating time and daily operating conditions, see the “Power Supply” section of the Specifications.
• Stable operation is promoted by frequent exposure to light.
**Operation Guide 3134 3205**

**Timekeeping**

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

- In the Timekeeping Mode, an indicator moves along the ring around the display as seconds advance.
- The tide graph shows tidal movements for the current date in accordance with the time and date settings you configure in the Timekeeping Mode.
- The Moon phase indicator shows the current Moon phase in accordance with the current date as kept in the Timekeeping Mode.
- In the Timekeeping Mode, you can press [SEL] to toggle the display contents as shown below.

**Day of the Week Screen**

- Day
- Month
- Day of week
- Day
- Month
- Year
- Power saving
- Temperature
- Altitude
- Barometric pressure

**Barometric Pressure Graph Screen**

- PM indicator
- Day of week
- Day
- Month
- Year
- Power saving
- Temperature
- Altitude
- Barometric pressure

**Daylight Saving Time (DST)**

Daylight Saving Time (summer time) advances the time setting by one hour from Standard Time. Remember that not all countries or even local areas use Daylight Saving Time.

The time calibration signals transmitted from Mainfingen (Germany), Anthorn (England), or Fort Collins (the United States) include both Standard Time and DST data. When the Auto DST setting is turned on, the watch switches between Standard Time and DST (summer time) automatically in accordance with the signals.

- The default DST setting is Auto DST (AUTO), but you can select it manually. If you select this setting, the watch switches between Standard Time and Daylight Saving Time (summer time) manually.

**Read This Before You Set the Time and Date!**

This watch is preset with a number of city codes, each of which represents a city by its time zone. If your location is not included in the preset city list, select the preset city code that is in the same time zone as your location.

**To set the time and date manually**

1. In the Timekeeping Mode, hold down [SEL] until the city code starts to flash, which indicates the setting screen.
2. Use [A] and [C] to select the city code you want.
3. Make sure you select your Home City code before changing any other settings.
4. For full information on city codes, see the “City Code Table”.
5. Press [SEL] to move the flashing in the sequence shown below to select the other settings.

**Screen**

- City Code
- Power saving
- Temperature
- Altitude

**Do this:**

- Use [A] (城市) and [C] (市の) to select the city.

**To change the Daylight Saving Time (summer time) setting**

1. In the Timekeeping Mode, hold down [SEL] until the city code starts to flash, which indicates the setting screen.
2. Press [SEL] and the DST setting screen appears.
3. Use [A] to cycle through the DST settings in the sequence shown below.

**Auto DST (AUTO)**

- DST

**DST on (on)**

- DST off (off)

- DST off (off)

To change DST, use [A] to select DST, press [SEL] to exit the setting screen.

**Note**

- Power saving on (on)/off (off) (To turn Power Saving on and off)
- Temperature, barometric pressure, and altitude units (To select the temperature, barometric pressure, and altitude units)

**Power saving on/off**

- Press [A] (+) and [C] (-) until the power saving indicator appears.

**Moon Phases and Moon Age**

The Moon goes through a regular 29.53-day cycle. During each cycle, the Moon appears to wax and wane as the relative positioning of the Earth, Moon, and Sun changes. The greater the angular distance between the Moon and the Sun, the more we see illuminated.

This watch performs a rough calculation of the current Moon age starting from day 0 of the moon age cycle. Since this watch performs calculations using integer values only (no fractions), the margin for error of the displayed Moon age is 1 day.

**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.

**Moon Phases and Moon Age**

The Moon goes through a regular 29.53-day cycle. During each cycle, the Moon appears to wax and wane as the relative positioning of the Earth, Moon, and Sun changes. The greater the angular distance between the Moon and the Sun, the more we see illuminated.

The angle to the Moon in relation to the direction at which the Sun is visible from the Earth.

This watch performs a rough calculation of the current Moon age starting from day 0 of the moon age cycle. Since this watch performs calculations using integer values only (no fractions), the margin for error of the displayed Moon age is 1 day.
The Tide Graph calculates and graphically represents current tide conditions in your Home City or a port city in the vicinity of the Home City based on longitudes, lunar day length, and lunitidal interval. The Tide Graph calculates and graphically represents current tide conditions in your Home City or a port city in the vicinity of the Home City based on longitudes, lunar day length, and lunitidal interval preset in watch memory, and on high tide times specified by you.

### Tidal Movements

Tides are the periodic rise and fall of the water of oceans, seas, bays, and other bodies of water caused mainly by the gravitational interactions between the Earth, Moon, and Sun. Tides rise and fall every six hours. The Tide Graph of this watch indicates tidal movement based on the Moon’s transit over a meridian and the lunitidal interval. The Tide Graph calculates and graphically represents current tide conditions in your Home City or a port city in the vicinity of the Home City based on longitudes, lunar day length, and lunitidal interval preset in watch memory, and on high tide times specified by you.

### Tide Graph

The Tide Graph graphically represents the current tide condition using one of three patterns that represent spring tide, intermediate tide, and neap tide, as shown below:

<table>
<thead>
<tr>
<th>Tide Name</th>
<th>Graph</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring Tide</td>
<td>Large difference between high tide and low tide. Occurs a few days before and after a New Moon and Full Moon.</td>
<td></td>
</tr>
<tr>
<td>Intermediate Tide</td>
<td>Medium difference between high tide and low tide.</td>
<td></td>
</tr>
<tr>
<td>Neap Tide</td>
<td>Small difference between high tide and low tide. Occurs a few days before and after the first quarter and last quarter of a half moon.</td>
<td></td>
</tr>
</tbody>
</table>

- The Tide Graph flashes as shown below to indicate the tide range.
- The segments on either end of the Tide Graph flash during high tide.

### Lunitidal Interval

Theoretically, high tide is at the Moon’s transit over the meridian and low tide is about six hours later. Actual high tide occurs somewhat later, due to factors such as viscosity, friction, and underwater topography. Both the time differential between the Moon’s transit over the meridian until high tide and the time differential between the Moon’s transit over the meridian until low tide are known as the “lunitidal interval”.

### Auto Return Features

- The watch returns to the Timekeeping Mode automatically if you do not perform any button operation for two or three minutes in the Tide/Moon Data, Alarm, Data Recall, Receive, Digital Compass, or Barometer/Thermometer Mode.
- If you do not perform any button operation while in the Altimeter Mode, the watch returns to the Timekeeping Mode automatically after nine or 10 hours.
- If you leave a screen with flashing digits on the display for two or three minutes without performing any operation, the watch exits the setting screen automatically.

### Initial Screens

When you enter the World Time or Alarm Mode, the data you were viewing when you last exited the mode appears first.

### Scrolling

The and buttons are used on the setting screen 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.

### Sensor Malfunction Indicator

Subjecting the watch to strong impact can cause sensor malfunction or improper contact of internal circuitry. When this happens, will appear on the display and sensor operations will be disabled.

- If appears while a measurement operation is being performed in a sensor mode, restart the measurement. If appears on the display again, it can mean there is something wrong with the sensor.
- If even battery power is at Level 1 or Level 2, the Digital Compass Mode, Barometer/Thermometer Mode, or Altimeter Mode sensor may be disabled if there is not enough voltage available to power it sufficiently. In this case, will appear on the display. This does not indicate malfunction, and sensor operation should resume once battery voltage returns to its normal level.
- If keeps appearing during measurement, it could mean there is a problem with the applicable sensor.

Whenever you have a sensor malfunction, be sure to take the watch to your original dealer or nearest authorized CASIO distributor as soon as possible.

### Button Operation Tone

The button operation tone sounds any time you press one of the watch’s buttons. You can turn the button operation tone on or off as desired.

- Even if you turn off the button operation tone, the alarm, Hourly Time Signal, and Countdown Timer Mode alarm all operate normally.

- Since the button also is the mode change button, holding it down to turn the button operation tone on or off also causes the watch’s current mode to change.
- The indicator is displayed in all modes when the button operation tone is turned off.

### Power Saving

When turned on, Power Saving enters a sleep state automatically whenever the watch is left for a certain period in an area where it is dark. The table below shows how watch functions are affected by Power Saving.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Display</th>
<th>Elapsed Time in Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Saving</td>
<td>Blank, with PS flashing</td>
<td>0 to 7 days (Display Sleep)</td>
</tr>
<tr>
<td></td>
<td>Blank, with PS not flashing</td>
<td>8 or 7 days (Function Sleep)</td>
</tr>
</tbody>
</table>

- Wearing the watch inside the sleeve of clothing can cause it to enter the sleep state.
- The watch will not enter the sleep state while the digital time is between 6:00 AM and 9:59 PM. If the watch is already in the sleep state when the digital time reaches 6:00 AM, however, it will remain in the sleep state.
- The watch will not enter the sleep state while it is in the Digital Compass, Barometer/Thermometer, Altimeter, Receive, Countdown Timer, or Stopwatch Mode. When the watch is left in any mode besides the Countdown Timer and Stopwatch Mode, it will return to the Timekeeping Mode automatically after a specific amount of time. Then if left in the dark for the elapsed time indicated in the table above, the watch will enter the sleep state.
To recover from the sleep state
Perform any one of the following operations:
- Move the watch to a well-lit area. It can take up to two seconds for the display to turn on.
- Press any button.
- Angle the watch towards your face for reading.

To turn Power Saving on and off
1. In the Timekeeping Mode, hold down [E] until the city code starts to flash, which indicates the setting screen.
2. Press [F] nine times until the Power Saving on/off screen appears.
3. Press [B] to toggle Power Saving on ([F]) and off ([E]).
4. Press [E] to exit the setting screen.
- The Power Saving on indicator ([F]) is on the display in all modes while Power Saving is turned on.

Radio-controlled Atomic Timekeeping Precautions
- Strong electrostatic charge can result in the wrong time being set.
- The time calibration signal bounces off the ionosphere. Because of this, such factors as changes in the reflectivity of the ionosphere, as well as movement of the ionosphere to higher altitudes due to seasonal atmospheric changes or the time of day may change the reception range of the signal and make reception temporarily impossible.
- Even if the time calibration signal is received properly, certain conditions can cause the time setting to be off by up to one second.
- The current time setting in accordance with the time calibration signal takes priority over any time settings you make manually.
- The watch is designed to update the date and day of the week automatically for the period January 1, 2000 to December 31, 2098. Setting of the date by the time calibration signal cannot be performed starting from January 1, 2100.
- This watch can receive signals that differentiate between leap years and non-leap years. If you are in an area where proper time calibration signal reception is impossible, the watch keeps the time with the precision noted in "Specifications".
- If you have problems with proper time calibration signal reception or if the time setting is wrong after signal reception, check your current city code, DST (summer time), and auto receive settings.
- The Home City setting reverts to the initial default of Tokyo (Tokyo) whenever the battery power level drops to Level 5 or when you have the rechargeable battery replaced. If this happens, change the Home City to the setting you want.

Transmitters
The time calibration signal received by this watch depends on the currently selected Home City code.
- When a U.S. time zone is selected, the watch receives the time calibration signal transmitted from the United States (Fort Collins).
- When a Japanese time zone is selected, the watch receives the time calibration signal transmitted from Japan (Fukushima and Fukuoka/Saga).
- When a European time zone is selected, the watch receives the time calibration signals transmitted from Germany (Mainflingen) and England (Anthorn).
- When your Home City is LON, PAR, BER, or ATH (which can receive both the Anthorn and Mainflingen signals), the watch first tries to pick up the signal it last successfully received. If that fails, it tries the other signal. For the first receive after you select your Home City, the watch tries the nearest signal first (Anthorn for LON, Mainflingen for PAR, BER, and ATH).

Timekeeping
- Resetting the seconds to 00 while the current count is in the range of 30 to 59 causes the minutes to be decreased by 1. In the range of 00 to 29, the seconds are reset to 00 without changing the minutes.
- With the 12-hour format, the PM ([E]) indicator appears on the display for times in the range of noon to 11:59 p.m. and no indicator appears 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, without any indicator.
- The 12-hour/24-hour timekeeping format you select in the Timekeeping Mode is applied in all modes.
- 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 when battery power drops to Level 5.
- The times for the Timekeeping Mode and all the city codes of the World Time Mode are calculated in accordance with each city’s UTC offset.
- The UTC offset is a value that indicates the time difference between a reference point in Greenwich, England and the time zone where a city is located.
- The letters “UTC” is the abbreviation for “Universal Time Coordinated”, which is the world-wide scientific standard of timekeeping. It is based upon carefully maintained atomic (cesium) clocks that keep time accurately to within microseconds. Leap seconds are added or subtracted as necessary to keep UTC in sync with the Earth’s rotation.

Illumination Precautions
- The electro-luminescent panel that provides illumination loses power after very long use.
- Illumination may be hard to see when viewed under direct sunlight.
- Illumination turns off automatically whenever an alarm sounds.
- 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.
- Frequent use of illumination runs down the battery.

Auto light switch precautions
- The auto light switch is turned off automatically whenever battery power is at Level 4.
- Wearing the watch on the inside of your wrist, movement of your arm, or vibration of your arm can cause frequent activation of the auto light switch and illumination of the display. To avoid running down the battery, turn off the auto light switch whenever engaging in activities that might cause frequent illumination of the display.
- Note that wearing the watch under your sleeve while the auto light switch is turned on can cause frequent illumination of the display and can run down the battery.

More than 15 degrees too high
- Illumination may not turn on 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.
- Illumination turns off in about one second, even if you keep the watch pointed towards your face.

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 all moisture from the case. It takes approximately 20 to 30 minutes for the case of the watch to reach the actual surrounding temperature.

Pressure Sensor and Temperature Sensor Calibration
The pressure sensor and temperature sensor built into the watch are calibrated at the factory and normally require no further adjustment. If you notice serious errors in the pressure readings and temperature 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.
- Incorrectly calibrating the temperature sensor can result in incorrect readings. Carefully read the following before doing anything.

To calibrate the pressure sensor and the temperature sensor
1. Press [B] to enter the Barometer/Thermometer Mode.
2. In the Barometer/Thermometer Mode, hold down [E] for about two seconds until either OFF or the reference temperature value starts to flash. This is the setting screen.
   - If you want to calibrate the barometric pressure sensor, press [B] to move the flashing to the middle display area. This is the pressure sensor calibration screen.
   - At this time, OFF or the barometric pressure value should be flashing on the display.
   - 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.
3. Use ▲ and ▼ to set the calibration value in the units shown below.  
Temperature: 0.1 °C (0.2 °F)  
Barometric Pressure: 1 hPa (0.05 inHg)  

*OFF* is displayed when the reference temperature and barometric pressure value are zero (0).  
Setting range: 0 to 5000 m (or 0 to 16,400 ft.)  

A. Press ▲ (up) and the setting value returns to the factory calibration (OFF).  
B. Press ▼ (down) at the same time as setting the screen.  

4. Press ▲ (up) to return to the Barometer/Thermometer Mode screen.  

**To select the temperature, barometric pressure, and altitude units**  
1. Enter the Timekeeping Mode.  
2. Hold down ▲ for 2 seconds.  
3. Use ▲ to select the setting screen for the unit you want to change.  
   - The first press of ▲ changes the selected unit setting as shown below.  
   - Press 3 under *To set the time and date manually* for information about how to scroll through setting screens.  

4. Press ▲ to change the unit setting.  
   - The values are the way you want, press ▲ to exit the setting screen.  

**Specifications**  

**Accuracy at normal temperature:** ±20 seconds a month (with no signal calibration)  

**Timekeeping:** Hour, minute, second, a.m. (A), p.m. (P), month, day, day of the week  
   - Time format: 12-hour and 24-hour  
   - Calendar system: Full Auto-calendar pre-programmed from the year 2000 to 2099  
   - Other: Daylight Saving Time/Standard Time  

**Time Calibration Signal Reception:** Auto receive 6 times a day (Remaining auto receives cancelled as soon as one is successful); Manual receive; Receive Mode  
   - Reversible Time Calibration Signals: Mainflingen, Germany (Call Sign: DCF77, Frequency: 60.0 kHz); Anthorn, England (Call Sign: WWVB, Frequency: 60.0 kHz); Fukushima, Japan (Call Sign: JYF, Frequency: 40.0 kHz); Fukushima/Saga, Japan (Call Sign: JUY, Frequency: 60.0 kHz)  

**Digital Compass:** 20 seconds continuous measurement; 16 directions; Angle value 0° to 359°; Four direction pointers; Calibration (bidirectional, northerly); Magnetic declination correction  

**Barometer:**  
   - Measurement and display range: 260 to 1,100 hPa (or 7.65 to 32.45 inHg)  
   - Display unit: 1 hPa (or 0.05 inHg)  
   - Measurement timing: Every five seconds in the Barometer/Thermometer Mode  
   - Other: Calibration; Manual measurement (button operation); Barometric pressure graph  

**Thermometer:**  
   - Measurement and display range: −10.0 to 60.0 °C (or 14.0 to 140.0 °F)  
   - Display unit: 0.1 °C (or 0.2 °F)  
   - Measurement timing: Every five seconds in the Barometer/Thermometer Mode  
   - Other: Calibration; Manual measurement (button operation)  

**Altimeter:**  
   - Measurement range: −700 to 10,000 m (or −3,300 to 32,800 ft.) without reference altitude  
   - Display range: −10,000 to 1,000 m (or −32,800 to 32,800 ft.)  
   - Negative values can be caused by readings produced based on a reference altitude due to atmospheric conditions.  
   - Display unit: 5 m (or 20 ft.)  
   - Current Altitude Data: 5-second interval for first 3 minutes followed by 2-minute interval for next 9 or 10 hours  
   - Altitude Data: 24 altitude records and one high altitude record Altitude Data: Pressing a button records the current altitude value, along with the date (month-day) of the reading.  
   - High altitude record: Automatically records the highest altitude value measured in the Altimeter Mode to date, along with the date (month-day) of the reading.  
   - Other: Reference altitude setting; Altitude graph  

**Bearing Sensor Precision:**  
   - Direction: Within ±10°  
   - Values are guaranteed for a temperature range of −10 °C to 40 °C (14 °F to 104 °F)  
   - North pointer: Within ±2 digital segments  

**Power Supply:** Solar cell and one rechargeable battery  

Approximate battery operating time: 5 months (from full charge to Level 4) under the following conditions:  
   - Watch not exposed to light  
   - Internal timekeeping  
   - Display on 18 hours per day, sleep state 6 hours per day  
   - 1 illumination operation (1.5 seconds) per day  
   - 10 seconds of alarm operation per day  
   - 10 digital compass operations per week  
   - 10 hours of altimeter measurement at 2-minute intervals, once per month  
   - 2 hours of barometric pressure measurement per day  
   - 6 minutes of signal reception per day  

Frequent use of illumination runs down the battery. Particular care is required when using the auto light switch.  

20 months when the watch is left in the sleep state (display off) after a full charge.  

**Pressure Sensor Precision:**  
   - Barometric Pressure 1 hPa (0.05 inHg)  

*OFF* is displayed when the reference temperature and barometric pressure value are zero (0).  
Setting range: 0 to 5000 m (or 0 to 16,400 ft.)  

**Altitude** ± (pressure differential + 3%) inHg  
   - Pressure Differential: ±1 hPa ±3%  
   - Pressure Differential: ±0.0885 inHg ±3%  

Values are guaranteed for a temperature range of −10 °C to 40 °C (14 °F to 104 °F).  

**Temperature Sensor Precision:** ±2 °C (±3.6 °F) in range of −10 °C to 60 °C (14.0 °F to 140.0 °F)  

**Tide/Moon Data:**  
   - Moon phase indicator for specific date; Tide level for specific date and time  
   - Other: High tide time adjustment; Moon phase reversal  

**Countdown Timer:**  
   - Measuring unit: 1 second  
   - Countdown range: 60 minutes  
   - Setting ranges: Countdown start time (1 to 60 minutes, 1-minute increments); Reset time (1 to 5 minutes, 1-minute increments)  
   - Other: Progress beeper  

**Stopwatch:**  
   - Measuring unit: 1/100 second  
   - Measuring capacity: ±23.55 6999  
   - Measuring modes: Elapsed time, split time, two finishes  

**Alarm:**  
   - 5 Daily alarms; Hourly time signal  

**World Time:** 33 cities (29 time zones)  
   - Other: Daylight Saving Time/Standard Time  

**Illumination:** EL Backlight (electro-luminescent panel); Auto Light Switch (Full Auto EL Light operates only in the dark)  

**Battery power indicator:** Power Saving; Low-temperature resistance (−10 °C)/14 °F); Button operation turn on/off  

**City Code Table**  

<table>
<thead>
<tr>
<th>City Code</th>
<th>City</th>
<th>UTC Offset/GMT Differential</th>
</tr>
</thead>
<tbody>
<tr>
<td>JKT</td>
<td>Jakarta</td>
<td>+7</td>
</tr>
<tr>
<td>HKG</td>
<td>Hong Kong</td>
<td>+8</td>
</tr>
<tr>
<td>HND</td>
<td>Tokyo</td>
<td>+9</td>
</tr>
<tr>
<td>DMC</td>
<td>Mumbai</td>
<td>+5.5</td>
</tr>
<tr>
<td>JED</td>
<td>Jeddah</td>
<td>+3</td>
</tr>
<tr>
<td>KHI</td>
<td>Karachi</td>
<td>+4.5</td>
</tr>
<tr>
<td>DHK</td>
<td>Delhi</td>
<td>+5.5</td>
</tr>
<tr>
<td>JBO</td>
<td>Jeddah</td>
<td>+3</td>
</tr>
<tr>
<td>FRA</td>
<td>Frankfurt</td>
<td>+2</td>
</tr>
<tr>
<td>DAC</td>
<td>Delhi</td>
<td>+5.5</td>
</tr>
<tr>
<td>THR</td>
<td>Doha</td>
<td>+3.5</td>
</tr>
<tr>
<td>JED</td>
<td>Jeddah</td>
<td>+3</td>
</tr>
<tr>
<td>SYD</td>
<td>Sydney</td>
<td>+10</td>
</tr>
<tr>
<td>MTL</td>
<td>Moscow</td>
<td>+3.5</td>
</tr>
<tr>
<td>HND</td>
<td>Tokyo</td>
<td>+9</td>
</tr>
<tr>
<td>NOU</td>
<td>Noumea</td>
<td>+12</td>
</tr>
<tr>
<td>JKT</td>
<td>Jakarta</td>
<td>+7</td>
</tr>
<tr>
<td>HKG</td>
<td>Hong Kong</td>
<td>+8</td>
</tr>
<tr>
<td>HND</td>
<td>Tokyo</td>
<td>+9</td>
</tr>
<tr>
<td>DMC</td>
<td>Mumbai</td>
<td>+5.5</td>
</tr>
<tr>
<td>JED</td>
<td>Jeddah</td>
<td>+3</td>
</tr>
<tr>
<td>KHI</td>
<td>Karachi</td>
<td>+4.5</td>
</tr>
<tr>
<td>DHK</td>
<td>Delhi</td>
<td>+5.5</td>
</tr>
<tr>
<td>JBO</td>
<td>Jeddah</td>
<td>+3</td>
</tr>
<tr>
<td>FRA</td>
<td>Frankfurt</td>
<td>+2</td>
</tr>
<tr>
<td>DAC</td>
<td>Delhi</td>
<td>+5.5</td>
</tr>
<tr>
<td>THR</td>
<td>Doha</td>
<td>+3.5</td>
</tr>
<tr>
<td>JED</td>
<td>Jeddah</td>
<td>+3</td>
</tr>
<tr>
<td>SYD</td>
<td>Sydney</td>
<td>+10</td>
</tr>
<tr>
<td>MTL</td>
<td>Moscow</td>
<td>+3.5</td>
</tr>
<tr>
<td>HND</td>
<td>Tokyo</td>
<td>+9</td>
</tr>
<tr>
<td>NOU</td>
<td>Noumea</td>
<td>+12</td>
</tr>
</tbody>
</table>

- Based on data as of June 2009.  
- The rules governing global times (GMT differential and UTC offset) and summer time are determined by each individual country.  
- In December 2007, Venezuela changed its offset from −4.0 to −4.5. Note however, that this watch displays an offset of −4.0 (the old offset) for the CCS (Caracas, Venezuela) city code.