Operation Guide 3071 (B)

CASIO

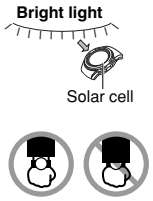
Getting Acquainted

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

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.

Keep the watch exposed to bright light

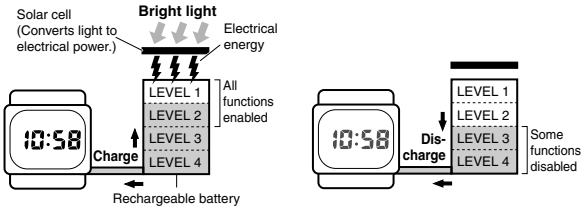


The electricity generated by the solar cell of the watch is stored by a built-in battery. Leaving or using the watch where it is not exposed to light causes the battery to run down. Make sure the watch is exposed to light as much as possible.

- 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 cause some watch functions to be 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.

Battery charges in the light. **Battery discharges in the dark.**



- 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...

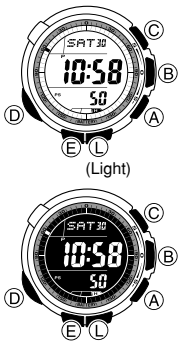
If the display of the watch is blank, it means that the watch's Power Saving function has turned off the display to conserve power.

- **See "Power Saving" for more information.**

Warning!

- The measurement functions built into this watch are not intended for taking measurements that require professional or industrial precision. Values produced by this watch should be considered as reasonable representations only.
- When engaging in mountain climbing or other activities in which losing your way can create a dangerous or life-threatening situation, always be sure to use a second compass to confirm direction readings.
- CASIO COMPUTER CO., LTD. assumes no responsibility for any loss, or any claims by third parties that may arise through the use of this watch.

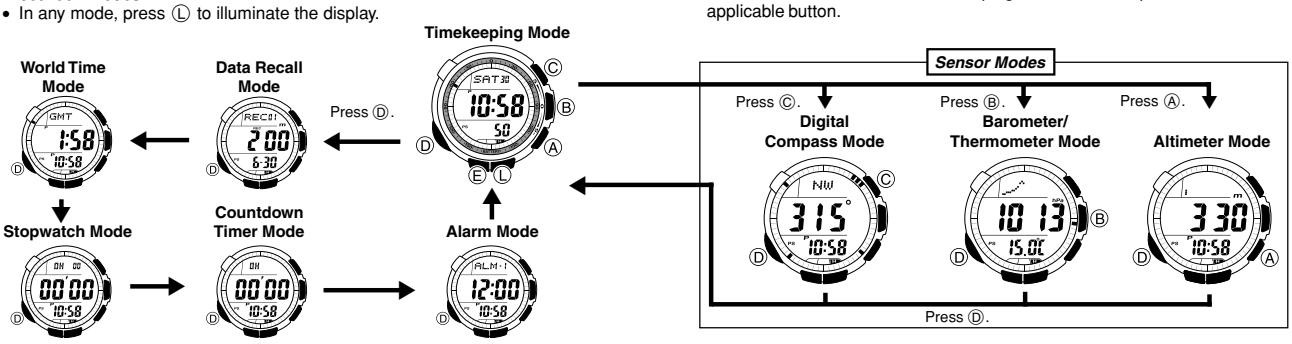
About This Manual



- Depending on the model of your watch, display text appears either as dark figures on a light background, or light figures on a dark background. 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.

General Guide

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



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

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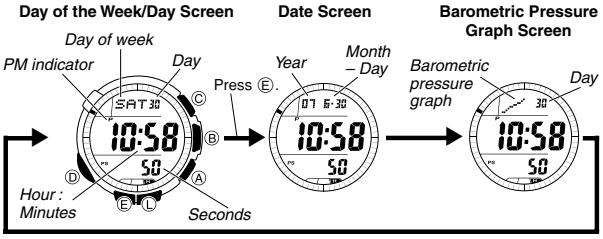
Timekeeping

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.
- Pressing Ⓔ while in the Timekeeping Mode will cycle through the Timekeeping Mode display formats as shown below.

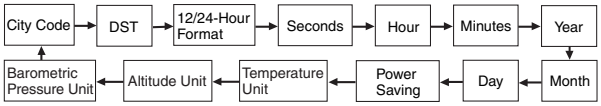


Read This Before You Set the Time and Date!

This watch is preset with a number of city codes, each of which represents the time zone where that city is located. When setting the time, it is important that you first select the correct city code for your Home City (the city where you normally use the watch). If your location is not included in the preset city codes, select the preset city code that is in the same time zone as your location.
- Note that all of the times for the World Time Mode city codes are displayed in accordance with the time and date settings you configure in the Timekeeping Mode.

To set the time and date

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



   - The following steps explain how to configure timekeeping settings only.
4. When the timekeeping setting you want to change is flashing, use Ⓐ and/or Ⓒ to change it as described below.

Screen	To do this:	Do this:
TYO	Change the city code	Use Ⓐ (east) and Ⓒ (west).
DST ON	Toggle between Daylight Saving Time (ON) and Standard Time (OFF).	Press Ⓐ.
24H	Toggle between 12-hour (12H) and 24-hour (24H) timekeeping.	Press Ⓐ.
50	Reset the seconds to 00	Press Ⓐ.
10:58	Change the hour or minutes	Use Ⓐ (+) and Ⓒ (–).
07 6·30	Change the year, month, or day	

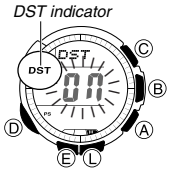
5. Press Ⓔ to exit the setting screen.

Note
- You also need to enter the Timekeeping Mode in order to configure the following settings.
  Power saving on/off ("To turn Power Saving on and off")
  Temperature, barometric pressure, and altitude units ("To select the temperature, barometric pressure, and altitude units")

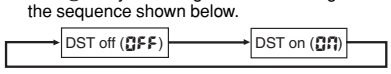
Daylight Saving Time (DST)

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.

To change the Daylight Saving Time (summer time) setting



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



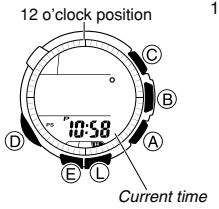
4. When the setting you want is selected, press Ⓔ to exit the setting screen.

• The **DST** indicator appears to indicate that Daylight Saving Time is turned on.

Digital Compass

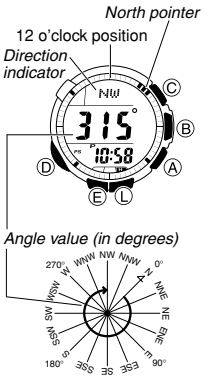
A built-in bearing sensor detects magnetic north and indicates one of 16 directions on the display. Direction readings are performed in the Digital Compass Mode.
You can store a direction reading in Bearing Memory and display that reading as you take subsequent readings.
- For more information about Bearing Memory, see "Bearing Memory".
- 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 position of the watch is pointing.
   - The direction reading on the display is updated each second for up to 20 seconds, after which measurement stops automatically.
2. Press Ⓓ to return to the Timekeeping Mode.

To take a direction reading

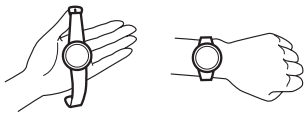


1. While the watch is in the Digital Compass Mode, place it on a flat surface, or if you are wearing the watch, make sure that your wrist is horizontal (in relation to the horizon).
2. Point the 12 o'clock position of the watch in the direction you want to measure.
3. Press Ⓒ to start a Digital Compass measurement operation.

- After about two seconds, the direction that the 12 o'clock position of the watch is pointing appears on the display.
- Also, four pointers appear to indicate magnetic north, south, east, and west.
- After the first reading is obtained, the watch continues to take direction readings automatically each second, for up to 20 seconds.

- While the watch is taking compass readings, it displays a direction angle, a direction indicator, and four direction pointers, which change dynamically when the watch is moved. The direction angle, direction indicator and direction pointers all disappear from the display after the compass reading operation is complete.

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 alarm, 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.

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

- See "Digital Compass Precautions" for other important information about taking direction readings.

Digital Compass Precautions

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

Location

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

Storage

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

Calibrating the Bearing Sensor

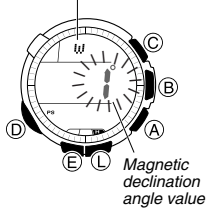
You should calibrate the bearing sensor whenever you feel that the direction readings being produced by the watch are off. There are three different calibration methods available: magnetic declination correction, bidirectional calibration, and northerly calibration.

- **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 degree 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).

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



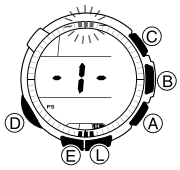
1. In the Digital Compass Mode, hold down Ⓔ for about two seconds until the magnetic declination angle value starts to flash. This is the setting screen.
2. Use Ⓐ (+) and Ⓒ (–) to change the magnetic declination angle value.
3. Press Ⓓ to move the flashing to the magnetic declination correction direction setting (**OFF**, **E**, **W**).
   - This will cause the magnetic declination angle direction setting to flash.
4. Use Ⓐ to cycle the direction setting between the following options.
   - **OFF**: No magnetic declination correction
   - **E**: When magnetic north is to the east (east declination)
   - **W**: When magnetic north is to the west (west declination)
   - The illustration above, for example, shows the value you should input and the direction setting you should select when the map shows a magnetic declination of 1° West.
5. When the setting is the way you want, press Ⓔ to exit the setting screen.

- Selecting **OFF** for the magnetic declination angle direction causes the watch’s magnetic declination angle value to change to `- -`.

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.

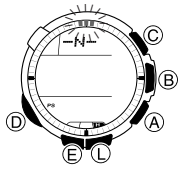
To perform bidirectional calibration



1. In the Digital Compass Mode, hold down Ⓔ for about two seconds until the magnetic declination angle value starts to flash. This is the setting screen.
2. Press Ⓓ twice 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 Ⓒ to calibrate the first direction.
   - `- - -` is shown on the display while calibration is being performed. When calibration of is successful, the display will show OK and `-2-`, and the north pointer flashes at the 6 o’clock position. This means that the watch is ready for calibration of the second direction.
4. Rotate the watch 180 degrees.
5. Press Ⓒ again to calibrate the second direction.

- `- - -` 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 `- - -` appears and then changes to ERR (error) on the calibration screen, it means that there is something wrong with the sensor. When ERR disappears after about one second, try performing the calibration again. If ERR keeps appearing, contact your original dealer or nearest authorized CASIO distributor to have the watch checked.

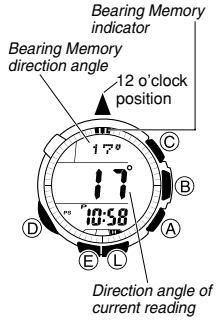
To perform northerly calibration



1. In the Digital Compass Mode, hold down Ⓔ for about two seconds until the magnetic declination angle value starts to flash. This is the setting screen.
2. Press Ⓓ three times to display the northerly calibration screen.
   - At this time, `-N-` (north) 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 Ⓒ to start the calibration operation.

- `- - - -` 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 0° shown as the angle value).
- If `- - - -` appears and then changes to ERR (error) on the calibration screen, it means that there is something wrong with the sensor. When ERR disappears after about one second, try performing the calibration again. If ERR keeps appearing, contact your original dealer or nearest authorized CASIO distributor to have the watch checked.

Bearing Memory



Bearing Memory Screen

Bearing Memory lets you store a direction reading and display that reading as you take subsequent readings.
The Bearing Memory screen displays the direction angle for the stored direction, along with an indicator in the ring around the display that also indicates the stored direction. When you take compass readings while the Bearing Memory screen is on the display, the direction angle for your current bearing (as read from the 12 o'clock position of the watch) is also shown.

To store a compass reading in Bearing Memory

1. In the Digital Compass Mode, press Ⓒ to take a reading.
   - After the compass reading is complete, the watch will continue to take direction angle readings automatically for about 20 seconds.
2. While direction angle readings are in progress, press Ⓔ.

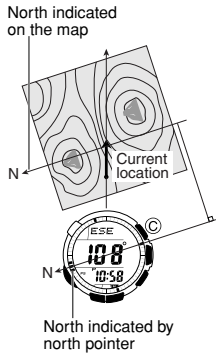
- This will cause the direction angle to flash for about one second as it is stored in Bearing Memory, and then the Bearing Memory screen will appear.
- While the Bearing Memory screen is on the display, you can press Ⓒ to start a 20-second direction reading operation that displays the direction angle for the direction that the 12 o'clock position of the watch is pointed. The direction angle of the current readings will disappear from the display after the direction reading operation is complete.
- During the first 20 seconds after you display the Bearing Memory screen or during the 20-second direction reading operation while the Bearing Memory screen is on the display, the direction stored in memory is indicated by an indicator in the ring around the display.
- Pressing Ⓔ while the Bearing Memory screen is displayed will clear the direction angle currently in Bearing Memory and return to the Digital Compass Mode.

Using the Digital Compass While Mountain Climbing or Hiking

This section provides three practical applications for using the watch's built-in digital compass.

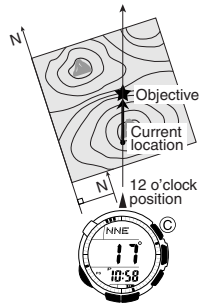
- Setting a map and finding your current location
  Having an idea of your current location is important when mountain climbing or hiking. To do this, you need to "set the map", which means to align the map so the directions indicated on it are aligned with the actual directions of your location. Basically what you are doing is aligning north on the map with north as indicated by the watch.
- Finding the bearing to an objective
- Determining the direction angle to an objective on a map and heading in that direction

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 Ⓒ 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.

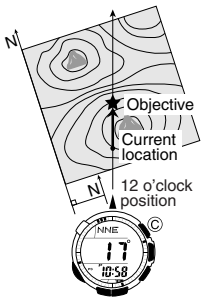
To find the bearing to an objective



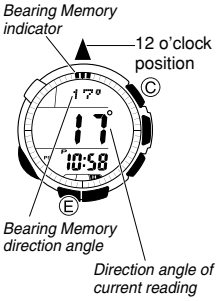
1. Set the map so its northerly indication is aligned with north as indicated by the watch, and determine your current location.
   - See "To set a map and find your current location" for information about how to perform the above step.
2. Set the map so the direction you want to travel on the map is pointed straight 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 Ⓒ 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 in accordance with 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



1. 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.
   - If you find it difficult to perform the above step while keeping everything aligned, first move into the correct position (12 o'clock position of the watch pointed at the objective) without worrying about the orientation of the map. Next, perform step 1 again to set the map.



3. In the Timekeeping, Digital Compass, Barometer/Thermometer, or Altimeter Mode, press Ⓒ to take a compass reading.
   - The reading will appear on the display after about two seconds.
   - The indicator (indicating the direction stored in Bearing Memory) and the direction of the watch's 12 o'clock position will disappear from the display about 20 seconds after you perform a compass reading by pressing Ⓒ. If this happens, press Ⓒ again to take a new reading and to display the indicator (indicating the direction stored in Bearing Memory).
4. After setting the map, keep the map and watch pointed in the same direction as you press Ⓔ to record the currently displayed direction in Bearing Memory.
   - See "Bearing Memory" for more information.
5. Now you can advance while monitoring the indicator (indicating the direction stored in Bearing Memory) to ensure that it remains in the 12 o'clock position.

Note

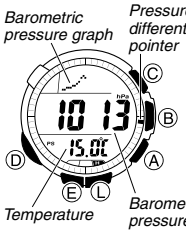
- When mountain climbing or hiking, conditions or geographic contours may make it impossible for you to advance in a straight line. If this happens, return to step 1 and save a new direction to the objective.

Barometer/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 Ⓑ in the Timekeeping Mode or in any of other sensor modes enters the Barometer/Thermometer 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 1hPa (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 1hPa = 1mb.

- 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 24 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 1hPa.
The following shows how to interpret the data that appears on the barometric pressure graph.

A rising graph generally means improving weather.

A falling graph generally means deteriorating weather.

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

Not visible on the display.

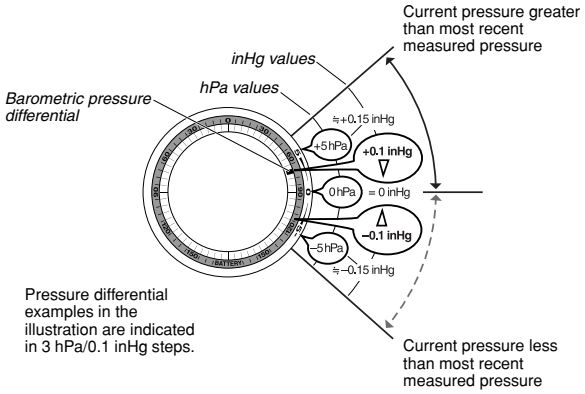
The following conditions cause the barometric pressure measurement to be skipped, with the corresponding point on the barometric pressure graph being left blank.

- Barometric reading that is out of range (260 hPa/mb to 1,100 hPa/mb or 7.65 inHg to 32.45 inHg)
- Sensor malfunction

Barometric Pressure Differential Pointer

This pointer indicates the relative difference between the most recent barometric pressure reading indicated on the barometric pressure graph, and the current barometric pressure value displayed in the Barometer/Thermometer Mode.

- Pressure differential is indicated in the range of ±5 hPa, in 1-hPa units.
- The barometric pressure differential pointer is not displayed when the displayed current barometric value is outside of the allowable measurement range (260 to 1,100 hPa).
- Barometric pressure is calculated and displayed using hPa as the standard. The barometric pressure differential also can be read in inHg units as shown in the illustration.



Pressure differential examples in the illustration are indicated in 3 hPa/0.1 inHg steps.

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 Ⓑ 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 ISA (International Standard Atmosphere) preset 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.
You also can measure the altitude differential (change) from a specific reference altitude. Specifying the reference altitude is as simple as pressing a single button to reset the reference altitude to zero.

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 is also 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 ISA (International Standard Atmosphere) 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.
The Altimeter Mode gives you a choice of four different display formats. The format you choose determines what type of data is displayed. The Altimeter Mode screen can show any three of the following four items: altitude graph, altitude value, altitude differential, and the current time. You also can select either of the following two altitude measurement types.

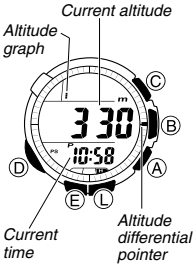
0’05: Readings at five-second intervals for one hour
2’00: Readings at five-second intervals for the first three minutes followed by two-minute intervals for approximately nine or 10 hours

- For information about configuring settings for the altitude reading interval and duration, see “To select the altitude measurement type”.

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

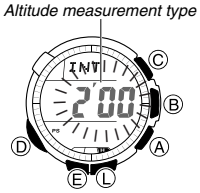


1. Press Ⓐ in the Timekeeping Mode or in any of the other sensor modes to enter the Altimeter Mode.
   - The watch will start altitude measurement automatically, and display the result.
   - It can take up to four or five seconds for the altitude reading to appear after you enter the Altimeter Mode.
2. If you want the altitude value and altitude graph to be updated in accordance with the altitude measurement type (interval and duration) you have selected, leave the watch in the Altimeter Mode.
   - If you want to restart the altitude measurement operation at any point, press Ⓐ.
3. To stop the altitude measurement operation, press Ⓓ 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 measurement range for altitude is –700 to 10,000 meters (–2,300 to 32,800 feet).
- The measured altitude may be a negative value in cases where there is a reference altitude value set or because of certain atmospheric conditions.
- The displayed altitude value changes to - - - - meters (or feet) if a measured altitude falls outside the measurement range. The altitude value will be displayed again as soon as the measured altitude is within the allowable range.
- You can change the measurement unit for displayed altitude values to either meters (m) or feet (ft). See "To select the temperature, barometric pressure, and altitude units".

To select the altitude measurement type

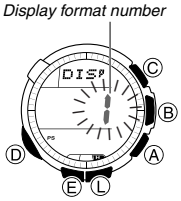
Altitude measurement type



1. In the Altimeter Mode, hold down Ⓔ for about two seconds until either **OFF** or the current reference altitude value starts to flash. This is the setting screen.
2. Press Ⓓ to display the current altitude measurement type setting.
   - This will cause either **0'05** or **2'00** to flash on the display.
3. Press Ⓐ to toggle the altitude measurement type setting between **0'05** and **2'00**.
   - **0'05**: Readings at five-second intervals for one hour
   - **2'00**: Readings at five-second intervals for the first three minutes followed by two-minute intervals for approximately nine or 10 hours thereafter
4. Press Ⓔ to exit the setting screen.

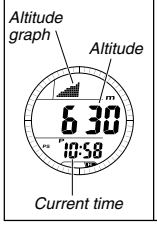
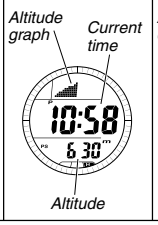
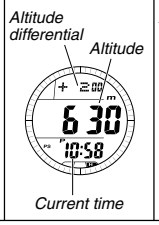
To select an Altimeter Mode display format

Display format number



Display Format Selection Screen

1. In the Altimeter Mode, hold down Ⓔ for about two seconds until either **OFF** or the current reference altitude value starts to flash. This is the setting screen.
2. Press Ⓓ twice to display the format selection screen.
   - The number of the currently selected format (**1** through **4**) will flash on the display.
3. Use Ⓐ (+) and Ⓒ (–) to scroll through the available display format numbers (**1** through **4**).
   - The contents of each of the Altimeter Mode display formats are shown below.

Format 1	Format 2	Format 3	Format 4
			

4. Press Ⓔ to exit the setting screen.
- If you selected display format 3 or 4, the watch will measure the altitude differential. See "Altitude Differential" for more information.

Saving Altitude Data

An altitude data save operation saves data in three different records: periodic records, a current session record, and a historical record.

To start a new save session

1. Press Ⓐ to enter the Altimeter Mode.
2. Hold down Ⓐ for about one second until **REC** flashes on the display, which indicates that a new session is in progress.
   - After you start a save session, the watch starts saving periodic records every 15 minutes. See "Periodic Records" for more information.
   - During a save session the watch also periodically updates the current session record. See "Current Session Record" for more information.
3. To stop an ongoing save session, hold down Ⓐ for about one second until **REC** disappears from the screen.

- Once you start a save session, measurement continues to be performed, and the **REC** indicator flashes on the display, even if you change to another mode.
- The save session also will stop automatically when Periodic Record 40 is stored.
- The watch updates the historical record continually while an altitude measurement operation is in progress. See "Historical Record" for more information.
- You can recall saved records using the Data Recall Mode.

Periodic Records

Periodic records of up to 40 altitude readings are taken during a save session.
- You can use the Data Recall Mode to view these records.

How periodic records are created and saved
Note
The following operation is performed simultaneously with the operation described under "How current session record data is updated".

a. The watch creates Periodic Record 1 when you start a new save session. Periodic Record 1 contains the current date (month and day), time, and altitude.
   - Each periodic record contains the current date (month and day), time, and altitude.
b. After that, the watch takes readings and stores Periodic Records 2, 3, 4, and so on at minute 00, 15, 30, and 45 of each hour.
c. After Periodic Record 40 is stored (or if you stop the save session manually by holding down Ⓐ), the watch will create a final periodic record, which contains the current date (month and day), time, and altitude.

Current Session Record

The Current Session Record contains the data described below. The contents of this record are updated at regular intervals while a save session is in progress.

Data	Description
High Altitude (MAX)	Highest altitude reached during the current session.
Low Altitude (MIN)	Lowest altitude reached during the current session.
Total Ascent (ASC)	Total cumulative ascent during the current session.
Total Descent (DSC)	Total cumulative descent during the current session.

- The maximum total ascent and total descent value is 99,995 meters (or 99,980 feet). Each value reverts to zero after the maximum is reached.

How current session record data is updated
Note
The following operation is performed simultaneously with the operation described under "How periodic records are created and saved".

a. When you hold down Ⓐ to start a save session, the watch will clear data that is already stored in the current session record.
b. The watch will measure altitude and calculate data as described below, and update the current session record accordingly. Note that measurement and saves depend on whether or not the watch is in the Altimeter Mode.

- **In the Altimeter Mode**

Altitude Measurement Type	First 3 minutes	After 3 minutes
0'05	Updated every 5 seconds	Updated every 5 seconds
2'00	Updated every 5 seconds	Updated every 2 minutes, and at 00, 15, 30, 45 of each hour

- **Outside the Altimeter Mode**
  The measurements are taken and session data is updated every two minutes, and at 00, 15, 30, 45 of each hour.

Historical Record

The Historical Record keeps track of high altitude, low altitude, total ascent, and total descent values across multiple save sessions. The contents of this record are updated continually while an altitude measurement operation is in progress.

How the historical record is updated
The watch performs the following operations continually while an altitude measurement is in progress.

Data	Update Operation
High Altitude	The historical record value is compared with the current session value, and the greater of the two is recorded in the historical record.
Low Altitude	The historical record value is compared with the current session value, and the lesser of the two is recorded in the historical record.
Total Ascent	The current session value is added to the historical record value.
Total Descent	

- See "Clearing the Historical Record" for information about clearing the historical record, which restarts all data values from zero.

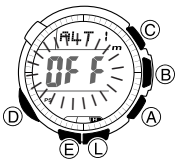
Other Altimeter Mode Features

This section explains other features and settings that are available in the Altimeter Mode. Note that all of the information in this section applies to all types of Altimeter Mode measurements, unless specifically indicated otherwise.

Specifying a Reference Altitude

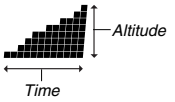
After you specify a reference altitude, the watch adjusts its air-pressure-to-altitude conversion calculation accordingly. The altitude measurements produced by this watch are subject to error caused by changes in air pressure. Because of this, we recommend that you update the reference altitude whenever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

To set a reference altitude



1. In the Altimeter Mode, hold down Ⓔ for about two seconds until either **OFF** or the current reference altitude value starts to flash. This is the setting screen.
2. Press Ⓐ (+) or Ⓒ (–) 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 Ⓐ and Ⓒ 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 Ⓔ 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).

Altitude Differential

You also can use the Altimeter Mode to measure the altitude differential from a specific reference altitude. Specifying the point is as simple as pressing a single button to reset the current reference altitude value to zero. Altitude differential measurement is performed each time the watch performs an altitude measurement.

- You must perform altitude differential measurement whenever you select format number 3 or 4 as the Altimeter Mode display format.
- The range of the altitude differential value is –3,000 meters (–9,980 feet) to 3,000 meters (9,980 feet).
- "-- -- --" is displayed in place of the altitude differential value whenever the measured value is outside the allowable range.
- The watch will assume that the reference altitude setting is zero for the first measurement after you exit the Altimeter Mode setting screen.
- See "Using Altitude Differential While Mountain Climbing or Hiking" for some real-life examples of how to use this feature.

To reset the altitude differential value to zero

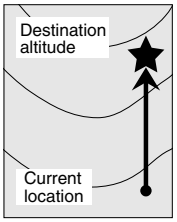
In the Altimeter Mode, press Ⓔ.

- This will start altitude measurement. The altitude differential value will show **0** after measurement is complete.
- You must perform altitude differential measurement whenever you select format number 3 or 4 as the Altimeter Mode display format.

Using Altitude Differential Measurement While Mountain Climbing or Hiking

After you zero reset the reference altitude value at a particular location while mountain climbing or hiking, you easily can measure the change in the altitude between that point and another point.

To use altitude differential measurement



1. In the Altimeter Mode, check to make sure that the display shows the altitude differential value.
   - If the altitude differential value is not displayed, use the procedure under "To select an Altimeter Mode display format" to select display format 3 or 4.
2. Use the contour lines on your map to determine the difference in altitude between your current location and your destination.

3. In the Altimeter Mode, press Ⓔ to take an altitude reading.
   - This causes the altitude differential value to appear at the top of the display.
4. While monitoring the difference between the altitude you found on the map and the altitude differential value displayed by the watch, advance towards your destination.

- If you determined that the difference between the map altitude and your current location is +80 meters, for example, you are approaching your destination when the displayed altitude differential value shows +80 meters.

Altitude Data Recall

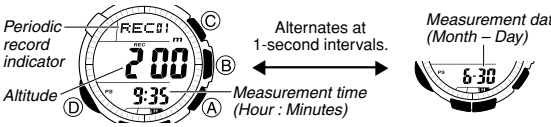
Use the Data Recall Mode to view altitude periodic records currently in memory, as well as the current session record and the altitude historical record. Altitude data records are created and stored in the Altimeter Mode.

Data Screens

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

Note

- While the periodic record, high altitude, or low altitude screen is displayed, the bottom part of the display alternates between the measurement date (month and day) and measurement time, at 1-second intervals.



Periodic Records

Periodic records show only data for the last save session performed with the watch. There can be up to 40 periodic records in memory.

Current Session Record Contents

The following data items show the contents of the current session record.

Data Type	Screen Name	Description
High Altitude	MAX	Highest altitude reached during the recalled session.
Low Altitude	MIN	Lowest altitude reached during the recalled session.
Total Ascent	ASC	Total cumulative ascent during the recalled session.
Total Descent	DSC	Total cumulative descent during the recalled session.

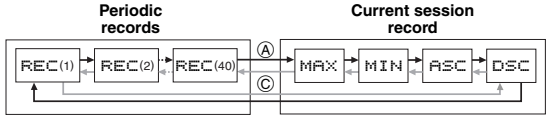
Historical Record

The historical record shows data for all save sessions performed since the last time the historical record was cleared.

Data Type	Screen Name	Description
High Altitude	MAX	Highest altitude reached during all sessions.
Low Altitude	MIN	Lowest altitude reached during all sessions.
Total Ascent	ASC	Total cumulative ascent during all sessions.
Total Descent	DSC	Total cumulative descent during all sessions.

To view periodic records and current session record contents

1. Enter the Data Recall Mode.
2. Use Ⓐ and Ⓒ to scroll through the data and display the one you want.



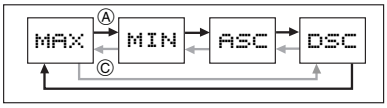
   - To view the current session record contents, use Ⓐ to scroll forward past the last periodic record (which will display the current session record MAX screen), or Ⓒ to scroll back past the first periodic record (to the DSC screen).
3. After you are finished viewing data, press Ⓓ to exit the Data Recall Mode.

- Dashes (----) will be displayed if data has been deleted or if there is no corresponding data due to error, etc. In such cases, total ascent (ASC) and total descent (DSC) values will show zero.
- When the total ascent (ASC) or total descent (DSC) exceeds 99,995 meters (or 99,980 feet), the applicable value will restart from zero.

To view historical record contents

1. Enter the Data Recall Mode.
2. Press Ⓑ to display the historical record screen (**TTL REC**).
3. Use Ⓐ and Ⓒ to scroll through the historical record screens as shown below.

Historical record data items

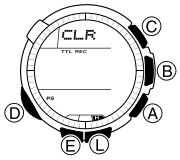


4. To return to the periodic record and current session screens, press Ⓑ again.
5. After you are finished viewing data, press Ⓓ to exit the Data Recall Mode.

Clearing the Historical Record

Use the following procedure when you want to clear the contents of the historical record and restart all values from zero.

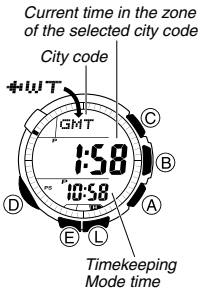
To clear the historical record



1. In the Data Recall Mode, press Ⓑ to display the high altitude data (MAX) of the historical record.
2. Hold down Ⓔ.
   - CLR will appear in the upper part of the display.
3. Keep Ⓔ held down for an additional two seconds until CLR starts flashing.

- The historical record high altitude screen will reappear when data deletion is complete.
- If you release the Ⓔ button part way through the above procedure, the watch will return to the historical record high altitude screen without deleting the data.

World Time



World Time displays the current time in 30 cities (29 time zones) around the world.

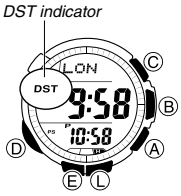
- If the current time shown for a city is wrong, check your Home City time settings and make the necessary changes.
- For full information on city codes, see the “City Code Table”.
- All of the operations in this section are performed in the World Time Mode, which you enter by pressing Ⓓ.

To view the time in another city

In the World Time Mode, use Ⓐ (east) and Ⓒ (west) to scroll through city codes (time zones).

- When the currently selected time zone is one that includes mostly ocean, a value indicating the zone’s Greenwich Mean Time differential appears in place of a city code.

To toggle a city code time between Standard Time and Daylight Saving Time



1. In the World Time Mode, use Ⓐ (east) and Ⓒ (west) to display the city code (time zone) whose Standard Time/Daylight Saving Time setting you want to change.
2. Hold down Ⓔ to toggle between Daylight Saving Time (**DST** indicator displayed) and Standard Time (**DST** indicator not displayed).

- The **DST** indicator appears on the display whenever you display a city code for which Daylight Saving Time is turned on.
- You cannot toggle between Daylight Saving Time and Standard Time if the displayed city code is GMT.
- Note that the DST/Standard Time setting affects only the currently displayed city code. Other city codes are not affected.

Stopwatch

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

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

To measure times with the stopwatch

Elapsed Time

Ⓐ **Start** → Ⓐ **Stop** → Ⓐ **Re-start** → Ⓐ **Stop** → Ⓒ **Clear**

Split Time

Ⓐ **Start** → Ⓒ **Split** (**SPL** displayed) → Ⓒ **Split release** → Ⓐ **Stop** → Ⓒ **Clear**

Two Finishes

Ⓐ **Start**	Ⓒ **Split**	Ⓐ **Stop**	Ⓒ **Split release**	Ⓒ **Clear**
	First runner finishes. Display time of first runner.	Second runner finishes.	Display time of second runner.	

Countdown Timer

You can set the countdown timer within a range of one minute to 24 hours. An alarm sounds when the countdown reaches zero.

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

To set the countdown start time

1. While the countdown start time is on the display in the Countdown Timer Mode, hold down Ⓔ until the hour setting of the countdown start time 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 Ⓓ to move the flashing between the hour and minute settings.
3. Use Ⓐ (+) and Ⓒ (–) to change the flashing item.
   - To set the starting value of the countdown time to 24 hours, set 0H 00'00.
4. Press Ⓔ to exit the setting screen.

To use the countdown timer

Press Ⓐ while in the Countdown Timer Mode to start the countdown timer.

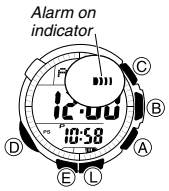
- When the end of the countdown is reached, the alarm sounds for five seconds or until you stop it by pressing any button. The countdown time is reset to its starting value automatically when the alarm sounds.
- Press Ⓐ while a countdown operation is in progress to pause it. Press Ⓐ again to resume the countdown.
- To stop a countdown operation completely, first pause it (by pressing Ⓐ) and then press Ⓒ. This returns the countdown time to its starting value.

Alarms

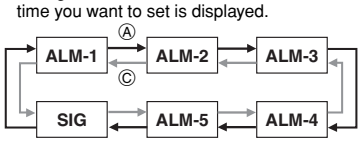
You can set five independent daily alarms. When an alarm is turned on, the alarm tone sounds when the alarm time is reached.
You can also turn on an Hourly Time Signal, which will cause the watch to beep twice every hour on the hour.

- The alarm number (**ALM-1** through **ALM-5**) 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 Ⓓ.

To set an alarm time



1. In the Alarm Mode, use Ⓐ and Ⓒ to scroll through the alarm screens until the one whose time you want to set is displayed.



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

Alarm Operation

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

To test the alarm

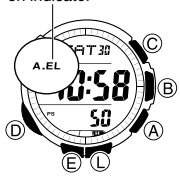
In the Alarm Mode, hold down Ⓐ to sound the alarm.

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

1. In the Alarm Mode, use Ⓐ and Ⓒ to select an alarm or the Hourly Time Signal.
2. When the alarm or the Hourly Time Signal you want is selected, press Ⓑ to turn it on and off.
   Indicates alarm is ON.
   Indicates Hourly Time Signal is ON.

- The alarm on indicator ( ) and the Hourly Time Signal on indicator ( ) are shown on the display in all modes while these functions are turned on.
- If any alarm is on, the alarm on indicator is shown on the display in all modes.

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

To turn on illumination manually

Press Ⓛ in any mode to illuminate the display for about one second.

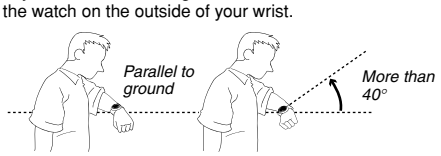
- The above operation turns on illumination regardless of the current auto light switch setting.
- Illumination is disabled while configuring sensor measurement mode settings and during bearing sensor calibration.

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.
Note that this watch features a "Full Auto EL Light", so the auto light switch operates only when available light is below a certain level. It does not illuminate the display under bright light.

- 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

Moving the watch to a position that is parallel to the ground and then tilting it towards you more than 40 degrees causes illumination to turn on.
• Wear the watch on the outside of your wrist.



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 Ⓛ 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 on 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:

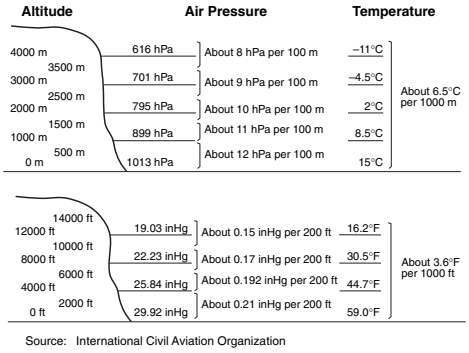
- Incorrect bidirectional calibration. Perform bidirectional calibration.
- Nearby source of strong magnetism, such as a household appliance, a large steel bridge, a steel beam, overhead wires, etc., or an attempt to perform direction measurement on a train, boat, etc. Move away from large metal objects 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 is 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: How does the barometer work?
Answer: Barometric pressure indicates changes in the atmosphere, and by monitoring these changes you can predict the weather with reasonable accuracy. Rising atmospheric pressure indicates good weather, while falling pressure indicates deteriorating weather conditions.
The barometric pressures that you see in the newspaper and on the TV weather report are measurements corrected to values measured at 0 m sea level.

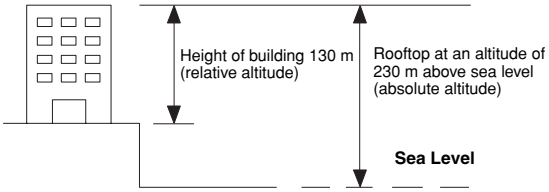
Question: How does the altimeter work?
Answer: Generally, air pressure and temperature decrease as altitude increases. This watch bases its altitude measurements on International Standard Atmosphere (ISA) values stipulated by the International Civil Aviation Organization (ICAO). These values define relationships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



Source: International Civil Aviation Organization

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

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



Precautions Concerning Simultaneous Measurement of Altitude and Temperature

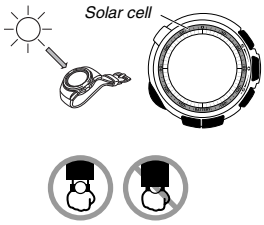
Though you can perform altitude and temperature measurements at the same time, you should remember that each of these measurements requires different conditions for best results. With temperature measurement, it is best to remove the watch from your wrist in order to eliminate the effects of body heat. 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 altitude measurement priority, leave the watch on your wrist or in any other location where the temperature of the watch is kept constant.
- To give temperature measurement priority, remove the watch from your wrist and allow it to 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.
- The Home City setting reverts to the initial default of TYO (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.
- 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 Indicator and Recover Indicator

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

Battery power indicator

Level	Battery Power Indicator	Function Status
1	H	All functions enabled.
2	M	All functions enabled.
3	LOW *(Charge Soon Alert)*	Illumination, beeper, and sensor operation disabled.
4	C	Except for timekeeping and the **C** (charge) indicator, all functions and display indicators disabled.
5		All functions disabled.

- The flashing LOW 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 2 (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.

Recover indicator

- Performing multiple sensor, illumination, or beeper operations during a short period may cause **R** (recover) to appear 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 **R** (recover) 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 **R** (recover) on the display.
- If **R** (recover) 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 six 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.

Exposure Level (Brightness)	Approximate Exposure Time
Outdoor Sunlight (50,000 lux)	5 minutes
Sunlight Through a Window (10,000 lux)	24 minutes
Daylight Through a Window on a Cloudy Day (5,000 lux)	48 minutes
Indoor Fluorescent Lighting (500 lux)	8 hours

- Since these are the specs, we can include all the technical details.
  - 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
  - 1 hour of altimeter measurement at 5-second interval, once per month
  - 2 hours of barometric pressure measurement per day
- Stable operation is promoted by frequent exposure to light.

Recovery Times
The table below shows the amount exposure that is required to take the battery from one level to the next.

Exposure Level (Brightness)	Approximate Exposure Time				
	Level 5	Level 4	Level 3	Level 2	Level 1
Outdoor Sunlight (50,000 lux)	1 hour			12 hours	4 hours
Sunlight Through a Window (10,000 lux)	3 hours			60 hours	17 hours
Daylight Through a Window on a Cloudy Day (5,000 lux)	6 hours			122 hours	34 hours
Indoor Fluorescent Lighting (500 lux)	53 hours			- - - - - - - -	- - - - - - - -

- The above exposure time values are all for reference only. Actual required exposure times depend on lighting conditions.

Reference

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

Auto 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 Data Recall, Alarm, 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 (altitude measurement type: **2'00**) or after one hour (altitude measurement type: **0'05**).
- 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, Alarm or Digital Compass Mode, the data you were viewing when you last exited the mode appears first.

Scrolling

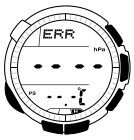
The Ⓐ and Ⓒ buttons are used on the setting screen to scroll through data on the display. In most cases, holding down these buttons during a scroll operation scrolls through the data at high speed.

Sensor Malfunction Indicator

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

Digital Compass Measurement

Barometric Pressure Measurement



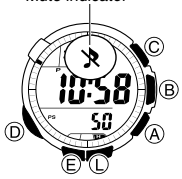
Altitude Measurement

- If ERR appears while a measurement operation is being performed in a sensor mode, restart the measurement. If ERR appears on the display again, it can mean there is something wrong with the sensor.
- 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. In this case, ERR will appear on the display. This does not indicate malfunction, and sensor operation should resume once battery voltage returns to its normal level.
- If ERR 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

Mute indicator



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.

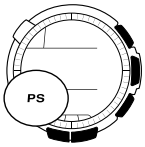
- Even if you turn off the button operation tone, the alarm, Hourly Time Signal, and Countdown Timer Mode alarm all operate normally.

To turn the button operation tone on and off

In any mode (except when a setting screen is on the display), hold down Ⓓ to toggle the button operation tone on (not displayed) and off (displayed).

- Since the Ⓓ button is also the mode change button, holding it down to turn the button operation 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.

- There actually are two sleep state levels: "display sleep" and "function sleep".

Elapsed Time in Dark	Display	Operation
60 to 70 minutes (Display Sleep)	Blank, with **PS** flashing	Display is off, but all functions are enabled.
6 or 7 days (Function Sleep)	Blank, with **PS** not flashing	All functions are disabled, but timekeeping is maintained.

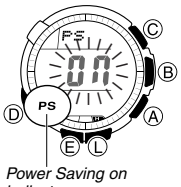
- Wearing the watch inside the sleeve of clothing can cause it to enter the sleep state.
- The watch will not enter the sleep state while the digital time is between 6:00 AM and 9:59 PM. If the watch is already in the sleep state when the digital time reaches 6:00 AM, however, it will remain in the sleep state.
- The watch will not enter the sleep state while it is in the Digital Compass, Barometer/Thermometer, Altimeter, Countdown Timer, or Stopwatch Mode. When the watch is left in any mode besides the Countdown Timer and Stopwatch Mode, the watch 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



Power Saving on indicator

1. In the Timekeeping Mode, hold down Ⓔ until the city code starts to flash, which indicates the setting screen.
2. Press Ⓓ nine times until the Power Saving on/off screen appears.
3. Press Ⓐ to toggle Power Saving on (00) and off (OFF).
4. Press Ⓔ to exit the setting screen.

- The Power Saving on indicator (**PS**) is on the display in all modes while Power Saving is turned on.

Timekeeping

- Resetting the seconds to 00 while the current count is in the range of 30 to 59 causes the minutes to be increased 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 **P** (PM) 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 current time for all city codes in the Timekeeping Mode and World Time Mode is calculated in accordance with the Greenwich Mean Time (GMT) differential for each city, based on your Home City time setting.
- GMT differential is calculated by this watch based on Universal Time Coordinated (UTC) data.

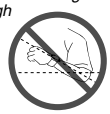
Illumination Precautions

- 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.

- Static electricity or magnetic force can interfere with proper operation of the auto light switch. If illumination does not turn on, try moving the watch back to the starting position (parallel with the ground) and then tilt it back towards your face again. If this does not work, drop your arm all the way down so it hangs at your side, and then bring it back up again.
- Under certain conditions, illumination does not turn on until about one second after you turn the face of the watch towards you. This does not necessarily indicate malfunction.
- You may notice a very faint clicking sound coming from the watch when it is shaken back and forth. This sound is caused by mechanical operation of the auto light switch, and does not indicate a problem with the watch.

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.

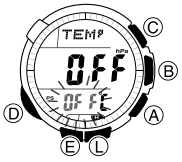
Pressure Sensor and Temperature Sensor Calibration

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!

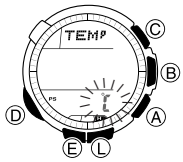
- Incorrectly calibrating the barometric pressure sensor can result in incorrect readings. Before performing the calibration procedure, compare the readings produced by the watch with those of another reliable and accurate barometer.
- Incorrectly calibrating the temperature sensor can result in incorrect readings. Carefully read the following before doing anything.
  Compare the readings produced by the watch with those of another reliable and accurate thermometer.
  If adjustment is required, remove the watch from your wrist and wait for 20 or 30 minutes to give the temperature of the watch time to stabilize.

To calibrate the pressure sensor and the temperature sensor



1. Press Ⓑ to enter the Barometer/ Thermometer Mode.
2. In the Barometer/Thermometer Mode, hold down Ⓔ 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 Ⓓ 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.
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)*
   - Pressing Ⓐ and Ⓒ at the same time returns to the factory calibration (**OFF**).
4. Press Ⓔ 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 Ⓔ until the city code starts to flash, which indicates the setting screen.
3. Use Ⓓ to select the setting screen for the unit you want to change.
   - See step 3 under "To set the time and date" for information about how to scroll through setting screens.
4. Press Ⓐ to change the unit setting.
   - Each press of Ⓐ changes the selected unit setting as shown below.
   Temperature ***°C** and **°F***
   Barometric Pressure ***hPa** and **inHg***
   Altitude ***m** and **ft***
5. After the settings are the way you want, press Ⓔ to exit the setting screen.

City Code Table

City Code	City	GMT Differential	Other major cities in same time zone
–11		–11.0	Pago Pago
HNL	Honolulu	–10.0	Papeete
ANC	Anchorage	–09.0	Nome
LAX	Los Angeles	–08.0	San Francisco, Las Vegas, Vancouver, Seattle/Tacoma, Dawson City
DEN	Denver	–07.0	El Paso, Edmonton
CHI	Chicago	–06.0	Houston, Dallas/Fort Worth, New Orleans, Mexico City, Winnipeg
NYC	New York	–05.0	Montreal, Detroit, Miami, Boston, Panama City, Havana, Lima, Bogota
CCS	Caracas	–04.0	La Paz, Santiago, Port Of Spain
RIO	Rio De Janeiro	–03.0	Sao Paulo, Buenos Aires, Brasilia, Montevideo
–02		–02.0	
–01		–01.0	Praia
GMT		+00.0	Dublin, Lisbon, Casablanca, Dakar, Abidjan
LON	London		
PAR	Paris	+01.0	Milan, Rome, Madrid, Amsterdam, Algiers, Hamburg, Frankfurt, Vienna, Stockholm
BER	Berlin		
ATH	Athens	+02.0	Helsinki, Istanbul, Beirut, Damascus, Cape Town
CAI	Cairo		
JRS	Jerusalem		
JED	Jeddah	+03.0	Kuwait, Riyadh, Aden, Addis Ababa, Nairobi, Moscow
THR	Tehran	+03.5	Shiraz
DXB	Dubai	+04.0	Abu Dhabi, Muscat
KBL	Kabul	+04.5	
KHI	Karachi	+05.0	Male
DEL	Delhi	+05.5	Mumbai, Kolkata, Colombo
DAC	Dhaka	+06.0	
RGN	Yangon	+06.5	
BKK	Bangkok	+07.0	Jakarta, Phnom Penh, Hanoi, Vientiane
HKG	Hong Kong	+08.0	Singapore, Kuala Lumpur, Beijing, Taipei, Manila, Perth, Ulaanbaatar
SEL	Seoul	+09.0	Pyongyang
TYO	Tokyo		
ADL	Adelaide	+09.5	Darwin
SYD	Sydney	+10.0	Melbourne, Guam, Rabaul
NOU	Noumea	+11.0	Port Vila
WLG	Wellington	+12.0	Christchurch, Nadi, Nauru Island

• Based on data as of June 2006.