

Congratulations upon your selection of this CASIO watch.

Applications

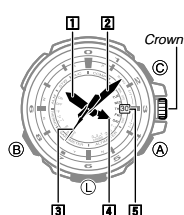
Built-in sensors are used to take direction, barometric pressure, temperature, and altitude readings, which are displayed by the hands of the watch. Such features make this watch useful when hiking, mountain climbing, or when engaging in other such outdoor activities.

Warning !

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

E-1

About This Manual



Operations are performed using the watch's crown, and the four buttons indicated by the letters (A), (B), (C) and (L) in this manual.

Hands and Date Indicator

- 1 Hour Hand
- 2 Minute Hand
- 3 Second Hand
- 4 Mode Hand (Indicates the day of the week in the Timekeeping Mode.)
- 5 Day Indicator

This User's Guide uses the numbers shown above to identify watch hands and indicators.
Note that the product illustrations in this manual are intended for reference only, and so the actual product may appear somewhat different than depicted by an illustration.

E-2

Using the Crown

You can use the crown to perform a number of different operations, and to change the settings of the watch.

To lock the crown



Outer ring

To lock the crown, gently push in as you rotate it away from you. Lock the crown firmly by rotating until its inner ring is no longer visible.

Important!

- You should normally have the crown locked during normal daily use. Leaving the crown unlocked creates the risk of unintended operations or even damage due to impact.

To unlock the crown



Inner ring

Rotate the crown towards you until it is completely loosened. When the crown is loosened completely, you will be able to see its inner ring as shown in the nearby illustration.

E-3

To pull the crown out



After loosening the crown, pull it out.
• The watch will beep when you pull the crown out.

To rotate the crown



Rotating the crown after you pull it out will move the watch's hands. You also can move the hands at high speed by performing the operation described below.

To start high-speed hand movement



With the crown pulled out, rotate the crown more than once in the direction that you want to move the hands. When you release the crown, the hands will start to move at high speed.

To stop high-speed hand movement



Rotate the crown towards you or press any button.

Note

High-speed hand movement is available in the Timekeeping Mode, when setting a time in the Alarm Mode, and when correcting day indicator settings.

E-4

To push the crown in



Push the crown back in.
• The watch will beep when you push the crown back in.

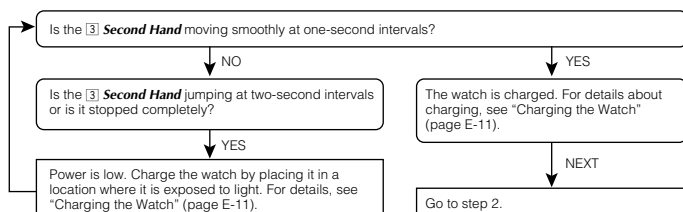
Note

If you do not perform any operation for about two or three minutes after pulling out the crown, crown operations will become disabled automatically. If this happens, push the crown back in and then pull it out again to re-enable crown operations.

E-5

Things to check before using the watch

1. With the crown locked, hold down (B) for at least two seconds to enter the Timekeeping Mode. Observe the movement of the (3) Second Hand.



2. Check the Home City.

Use the procedure under "To configure Home City settings" (page E-27) to configure your Home City.

Important!

Proper time calibration signal reception depends on correct Home City, time, and date settings. Make sure you configure these settings correctly.

E-6

3. Set the current time.

- **To set the time using a time calibration signal**
See "To get ready for a receive operation" (page E-18).
- **To set the time manually**
See "Configuring Current Time and Date Settings Manually" (page E-31).

The watch is now ready for use.

- For details about the watch's radio controlled timekeeping feature, see "Radio Controlled Atomic Timekeeping" (page E-16).

E-7

Contents

E-2 About This Manual

E-3 Using the Crown

- E-3 To lock the crown
- E-3 To unlock the crown
- E-4 To pull the crown out
- E-4 To rotate the crown
- E-4 To start high-speed hand movement
- E-4 To stop high-speed hand movement
- E-5 To push the crown in

E-6 Things to check before using the watch

E-11 Charging the Watch

- E-15 To recover from the sleep state

E-16 Radio Controlled Atomic Timekeeping

- E-18 To get ready for a receive operation
- E-20 To check the result of the latest receive operation
- E-20 To perform Manual Receive
- E-21 To turn auto receive on or off

E-23 Mode Reference Guide

E-8

E-9

E-62 Specifying Altitude, Barometric Pressure, and Temperature Units

- E-62 To specify altitude, barometric pressure, and temperature units

E-63 Using the Alarm

- E-63 To change the alarm time setting
- E-64 To turn the alarm on or off
- E-64 To stop the alarm

E-65 Using the Stopwatch

- E-65 To perform elapsed time measurement

E-66 Adjusting Home Positions

- E-67 To trigger auto hand home position adjustment manually
- E-68 To adjust the Day Indicator home position

E-69 Illumination

- E-69 To turn on illumination manually
- E-69 To change the illumination duration
- E-71 To enable or disable the auto light switch

E-73 Troubleshooting

E-80 Specifications

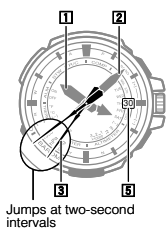
E-10

E-11

Important!

- Keep the watch in an area normally exposed to bright light when storing it for long periods. This helps to ensure that power does not run down.
- 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 power to run down. Make sure that the watch is exposed to bright light whenever possible.

Power Levels



- You can get an idea of the watch's power level by observing the movement of the **[3] Second Hand** in the Timekeeping Mode.
- If the **[3] Second Hand** is moving smoothly at one-second intervals, power is at Level 1.
 - If the **[3] Second Hand** is jumping at two-second intervals, power is at Level 2, which is quite low. Expose the watch to light as soon as possible so it can charge (Low battery alert).

E-12

E-13

Charging Times

Exposure Level (Brightness)	Daily Operation *1	Level Change *2		
		Level 3	Level 2	Level 1
Outdoor sunlight (50,000 lux)	8 minutes	3 hours	31 hours	
Window sunlight (10,000 lux)	30 minutes	7 hours	113 hours	
Window sunlight on cloudy day (5,000 lux)	48 minutes	11 hours	184 hours	
Indoor fluorescent lighting (500 lux)	8 hours	115 hours	---	

*1 Approximate exposure each day to generate power for normal daily operation.

*2 Approximate exposure to take power up one level.

• The above times are for reference only. Actual times depend on lighting conditions.

• For details about the operating time and daily operating conditions, see the "Power Supply" section of the Specifications (page E-83).

E-27 Configuring Home City Settings

- E-27 To configure Home City settings
- E-29 To select Auto or Manual Standard Time/Daylight Saving Time Switching

E-31 Configuring Current Time and Date Settings Manually

- E-31 To change the current time setting manually
- E-33 To change the current date setting manually

E-35 Taking Direction Readings

- E-35 To take a direction reading
- E-37 To perform bidirectional calibration
- E-38 To perform northerly calibration
- E-40 To set a map

E-42 Taking Altitude Readings

- E-44 To take an altitude reading
- E-46 To calibrate the altitude sensor reading

E-51 Taking a barometric pressure reading

- E-52 To take a barometric pressure reading
- E-55 To show and hide barometric pressure differential
- E-56 To calibrate the Barometric Pressure Sensor Reading

E-58 Taking Temperature Readings

- E-59 To take a temperature reading
- E-60 To calibrate the temperature sensor reading

Charging the Watch

The face of the watch is a solar panel that generates power from light. The generated power charges a built-in rechargeable battery, which powers watch operations. The watch charges whenever it is exposed to light.

Charging Guide



- Whenever you are not wearing the watch, be sure to leave it in a location where it is exposed to light.
- Best charging performance is achieved by exposing the watch to light that is as strong as possible.



- When wearing the watch, make sure that its face is not blocked from light by the sleeve of your clothing.
- The watch may enter a sleep state (page E-15) if its face is blocked by your sleeve even only partially.

Warning!

Leaving the watch in bright light for charging 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

Level	Hand Movement	Function Status
1	Normal.	All functions enabled
2	[3] Second Hand jumps at two-second intervals. [5] Day indicator changes to 1 at the time of normal date changing.	Illumination, beeper, sensors, time calibration signal reception, home position adjustment all disabled.
3	All hands stop at 12 o'clock. [5] Day indicator changes to 1 .	All functions disabled

- When power drops to Level 3, all functions will be disabled but the watch will continue to keep time internally for about one week. If you recharge the battery sufficiently during this period, the hands will move automatically to the correct setting and regular timekeeping will resume. After one week, all settings (including timekeeping) will be cleared. Recharging the battery will reset all settings to their initial factory defaults.

Power Recovery Mode

The watch is designed to go into a power recovery mode that temporarily disables functions whenever power suddenly drops below a certain level due to overuse of sensors, illumination, and/or the alarm tone over a short period. All watch operations are disabled in the power recovery mode. The hands will move to the correct positions and the watch will resume normal operation after power recovers (in about 15 minutes). Putting the watch in a location where it is exposed to light will help power to recover sooner.

Power Saving

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: "second hand sleep" and "function sleep".

Elapsed Time in Dark	Operation
60 to 70 minutes (second hand sleep)	• [3] Second Hand stopped at 12 o'clock. • All other functions enabled.
6 or 7 days (function sleep)	• All functions, including timekeeping, disabled. • All hands stopped at 12 o'clock. • Only the [5] Day Indicator operates normally.

- The watch will not enter a sleep state between 6:00 AM and 9:59 PM. If the watch is already in a sleep state when 6:00 AM arrives, however, it will remain in the sleep state.
- The watch will not enter a sleep state while it is in the Stopwatch Mode.

To recover from the sleep state

Move the watch to a well-lit area, perform any button operation, perform a crown operation (pull-out, rotate), or move your hand to an angle that causes an Auto Light operation.

E-14

E-15

Radio Controlled Atomic Timekeeping

This watch receives a time calibration signal and updates its time setting accordingly. However, when using the watch outside of areas covered by time calibration signals, you will have to adjust the settings manually as required. See "Configuring Current Time and Date Settings Manually" (page E-31) for more information.

This section explains how the watch updates its time settings when the city code selected as the Home City is in Japan, North America, Europe, or China, and is one that supports time calibration signal reception.

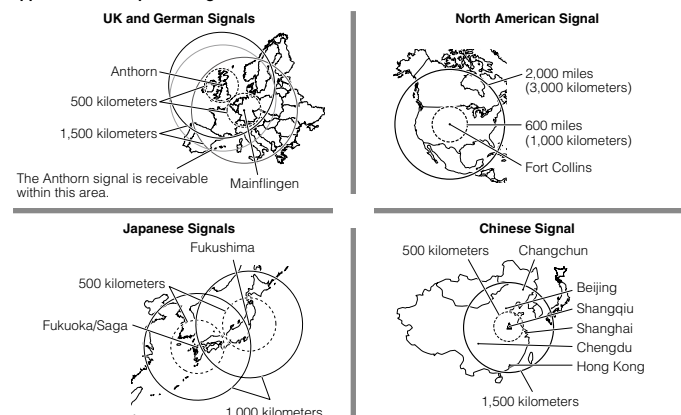
If your Home City Code setting is this:	The watch can receive the signal from the transmitter located here:
LON (LONDON), PAR (PARIS), ATH (ATHENS)	Anthorn (England), Mainflingen (Germany)
HKG (HONG KONG)	Shangqiu City (China)
TYO (TOKYO)	Fukushima (Japan), Fukuoka/Saga (Japan)
NYC (NEW YORK), CHI (CHICAGO), DEN (DENVER), LAX (LOS ANGELES), ANC (ANCHORAGE), HNL (HONOLULU)	Fort Collins, Colorado (United States)

Important!

- The areas covered by **HNL (HONOLULU)** and **ANC (ANCHORAGE)** are quite far from the calibration signal transmitters, so certain conditions may cause reception problems.

E-16

Approximate Reception Ranges

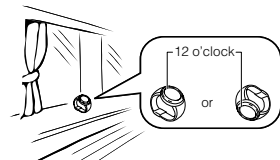


E-17

- Signal reception may not be possible at the distances noted below during certain times of the year or day. Radio interference may also cause problems with reception.
 - Mainflingen (Germany) or Anthorn (England) transmitters: 500 kilometers (310 miles)
 - Fort Collins (United States) transmitter: 600 miles (1,000 kilometers)
 - Fukushima or Fukuoka/Saga (Japan) transmitters: 500 kilometers (310 miles)
 - Shangqiu (China) transmitter: 500 kilometers (310 miles)
- As of December 2010, China does not use Daylight Saving Time (DST). If China does go to the Daylight Saving Time system in the future, some functions of this watch may no longer operate correctly there.
- Using this watch in a country covered by a time calibration signal that is different from the countries it supports may result in incorrect time indication due to local application of summer time, etc.
- When using this watch in an area where time calibration signal reception is not possible, you can adjust the time and date manually.

To get ready for a receive operation

- Place the watch in a location where signal reception is good.



- Position the watch as shown in the nearby illustration, with 12 o'clock pointed towards a window. Make sure there are no metal objects nearby.
- Signal reception normally is better at night.
- The receive operation takes from three to eight minutes, but in some cases it can take as long as 16 minutes. Take care that you do not perform any button operation or move the watch during this time.

E-18

- Signal reception may be difficult or even impossible under the conditions described below.



- What you should do next depends on whether you are using Auto Receive or Manual Receive.

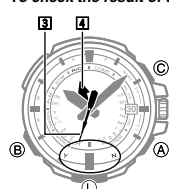
- Auto Receive: Leave the watch over night in the location you selected in step 2. See "Auto Receive" for details.
- Manual Receive: Perform the operation under "To perform manual receive".

Auto Receive

- With Auto Receive, the watch performs the receive operation each day automatically up to six times (up to five times for the Chinese calibration signal) between the hours of midnight and 5 a.m. When any receive operation is successful, none of the other receive operations for that day are performed.
- When a calibration time is reached, the watch will perform the receive operation. The receive operation is not performed if a calibration time is reached while you are configuring settings.

E-19

To check the result of the latest receive operation

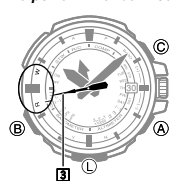


- Use (B) to select the Receive Mode (R/C) as shown on page E-24.
- The (1) Mode Hand will move to R/C.
 - The (3) Second Hand will move to Y (YES) if the latest receive operation was successful, or N (NO) if it was not.

Note

The (3) Second Hand will indicate N (NO) if you have adjusted the time or date setting manually since the latest receive operation.

To perform Manual Receive



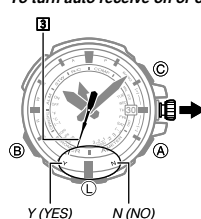
- Use (B) to select the Receive Mode (R/C) as shown on page E-24.
- In the Receive Mode (R/C), hold down (A) for at least two seconds.
 - The (3) Second Hand will indicate R (READY) while the watch is getting ready to receive a time calibration signal, and W (WORK) while a receive operation is in progress.
 - If the receive operation is successful, the watch will automatically adjust its time settings and the (3) Second Hand will point to Y (YES). It does not adjust the setting if the operation failed.

E-20

Note

- It takes about 30 seconds before signal reception conditions stabilize.
- To interrupt a receive operation and return to regular timekeeping, press any button.

To turn auto receive on or off



- In the Receive Mode (R/C), loosen the crown and then pull it out.
 - The (3) Second Hand will point to Y (YES) if auto receive is currently on, and N (NO) if it is off.
- Press (C) to toggle auto receive between on and off.
- After the setting is the way you want, push the crown back in and lock it.
 - The watch will return to the last receive result (Y/N).

E-21

Radio-controlled Atomic Timekeeping Precautions

- Time calibration signal reception is performed automatically while the watch is in the Timekeeping Mode.
- Strong electrostatic charge can result in the wrong time setting.
- Even if a receive operation is successful, certain conditions can cause the time setting to be off by up to one second.
- The watch is designed to update the date automatically for the period from January 1, 2000 to December 31, 2099. Updating of the date by signal reception will no longer be performed starting from January 1, 2100.
- If you are in an area where signal reception is not possible, the watch keeps time with the precision noted in "Specifications" (page E-80).
- The receive operation is disabled under any of the following conditions.
 - While power is at Level 2 or lower (page E-12)
 - While the watch is in the power recovery mode (page E-13)
 - While the watch is in the function sleep state (power saving, page E-15)
- A receive operation is cancelled if an alarm sounds while it is being performed.

Mode Reference Guide

Your watch has 8 "modes". The mode you should select depends on what you want to do.

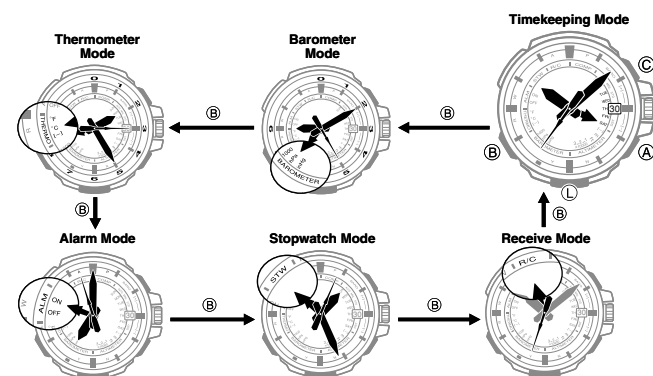
To do this:	Enter this mode:	See:
View the current time, date, and day of the week	Timekeeping Mode	E-27
Home City, time, and summer time settings	Digital Compass Mode	E-35
Determine magnetic north	Altimeter Mode	E-42
Determine the altitude at your current location	Barometer Mode	E-51
Determine the barometric pressure at your current location	Thermometer Mode	E-58
Barometric pressure differential	Alarm Mode	E-63
Determine the temperature at your current location	Stopwatch Mode	E-65
Set an alarm time	Receive Mode	E-16
Turn the alarm on or off		
Use the stopwatch to measure elapsed time		
Perform a manual time calibration signal receive operation		
Check whether the last receive operation was successful		
Configure Auto Receive settings		

E-22

E-23

Selecting a Mode

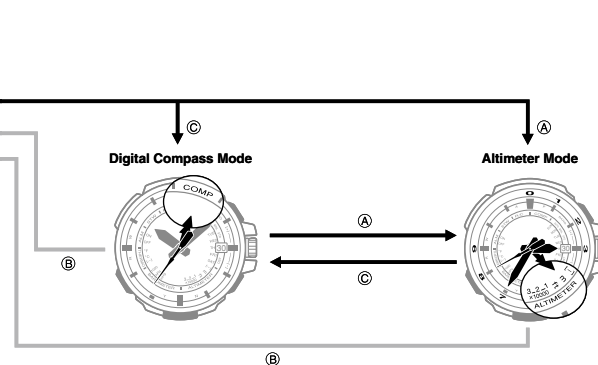
- The illustration below shows which buttons you need to press to navigate between modes.
- To return to the Timekeeping Mode from any other mode, hold down **(B)** for about two seconds.



E-24

Note

- The Digital Compass Mode and Altimeter Mode can be entered only from the Timekeeping Mode. Perform the operations below after entering the Timekeeping Mode.



E-25

General Functions (All Modes)

The functions and operations described in this section can be used in all of the modes.

Direct Timekeeping Mode Access

- To enter the Timekeeping Mode from any other mode, hold down **(B)** for about two seconds.

Auto Return Features

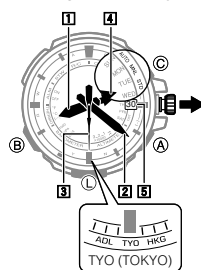
- The watch will automatically return to the Timekeeping Mode if you do not perform any button operation for a particular amount of time in each mode.

Mode Name	Approximate Elapsed Time
Alarm, Receive	2 to 3 minutes
Digital Compass, Altimeter, Barometer, Thermometer	1 to 2 minutes

Configuring Home City Settings

The Home City is location where you will normally use the watch. You can choose from a selection of city codes that represent 29 cities around the globe.

To configure Home City settings



Note

This watch does not have a city code that corresponds to Newfoundland.

- In the Timekeeping Mode, loosen the crown and then pull it out.
 - This will cause the **[3] Second Hand** to move to the city code of the currently selected Home City.
 - This indicates the city code setting mode.
- Rotate the crown to move the **[3] Second Hand** to the city code you want to select as your Home City.
 - Whenever you select a city code, the **[4] Mode Hand** will move to its summer time setting, while the **[1] Hour Hand**, **[2] Minute Hand**, and **[5] Day Indicator** will move to the current time and date in that city.
- After the setting is the way you want, push the crown back in and then lock it.

E-26

E-27

Standard Time and Daylight Saving Time Setting

Except for China time zones, setting standard time/daylight saving time to **AUTO** will cause standard time/daylight saving time to switch automatically in accordance with the time calibration signal. In locations not covered by a time calibration signal, you need to switch manually.

Note

Daylight saving time (DST), or summer time as it is known in some countries, calls for setting clocks ahead one hour from standard time during the summer season. Note that the period during which and the areas where Daylight saving time is applied depend on each country. Some countries or geographic areas may not use summer time.

Standard Time and Daylight saving time

STD: Indicates that the current time is standard time.

DST: Indicates that the current time is daylight saving time.

Daylight Saving Time/Standard Time Switching

AUTO (STD/DST Auto Switching):

Switches between standard time and daylight saving time automatically in accordance with the received time synchronization signal.

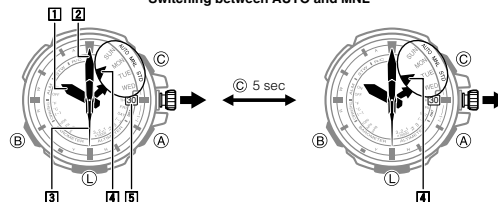
MNL (STD/DST Manual Switching):

You need to switch between standard time and daylight saving time manually.

To select Auto or Manual Standard Time/Daylight Saving Time Switching

- In the Timekeeping Mode, unlock the crown and then pull it out.
 - The **[3] Second Hand** will move to the currently selected Home City code.
 - The **[4] Mode Hand** will move to **STD** (standard time) or **DST** (daylight saving time).
- Hold down **(C)** for at least five seconds until the watch beeps.
 - Each time you perform the above operation, the **[4] Mode Hand** will switch between **MNL** (manual switching) and **AUTO** (auto switching).
 - After about two seconds, the **[4] Mode Hand** will move back to **STD** or **DST**.

Switching between AUTO and MNL



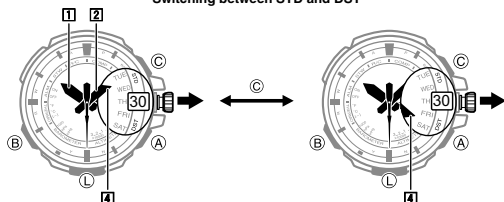
E-28

E-29

- Here you could press **(C)** to toggle the **[4] Mode hand** between **STD** and **DST**.

- If you selected **AUTO** for standard time/daylight saving time switching, the **[4] Mode Hand** will move automatically to the proper STD/DST setting the next time the watch receives a time calibration signal.

Switching between STD and DST



- Push the crown back in and then lock it.
 - This returns to normal timekeeping.

Configuring Current Time and Date Settings Manually

You can configure current time and date settings manually when the watch is unable to receive a time calibration signal.

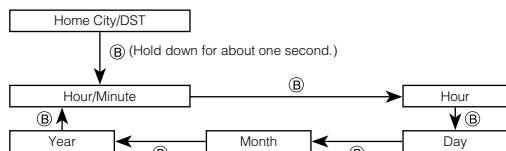
To change the current time setting manually

- In the Timekeeping Mode, loosen the crown and then pull it out.
 - This will cause the **[3] Second Hand** to move to the city code of the currently selected Home City.
- Change the Home City setting, if you want.
 - To change the Home City setting, perform step 2 under "To configure Home City Settings" (page E-27).
- Hold down **(B)** for one second until the **[3] Second Hand** moves to **A** (a.m.) or **P** (p.m.).
 - This is the time setting mode.
 - In the following steps, each press of **(B)** cycles between settings as shown below.



E-30

E-31

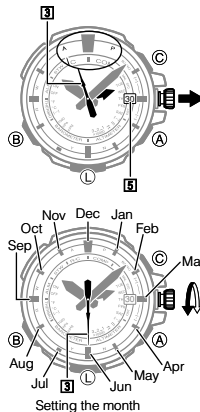


4. Rotate the crown to adjust the time (hour and minute) setting.
 - With the crown pulled out, rotate the crown more than once in the direction that you want to move the hands. When you release the crown, the hands will start to move at high speed.
 - Note that high-speed reverse movement is not supported.
 - When adjusting the setting, check to make sure that the **[3] Second Hand** correctly indicates an a.m. time or p.m. time.
5. Press **(B)**. This will enter the hour setting mode.
6. Rotate the crown to adjust the hour setting only.
 - With the crown pulled out, rotate the crown more than once in the direction that you want to move the hands. When you release the crown, the hands will start to move at high speed.
 - Note that high-speed reverse movement is not supported.
 - When adjusting the setting, check to make sure that the **[3] Second Hand** correctly indicates an a.m. time or p.m. time.
 - If you want to change the date setting at this time, press **(B)** and perform the procedure starting from step 3 under "To change the current date setting manually" (page E-33).
7. After the setting is the way you want, push the crown back in and lock it.
 - This causes timekeeping to resume with the **[3] Second Hand** starting from 12 o'clock.

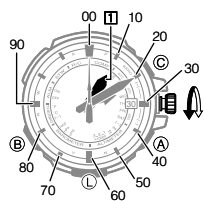
E-32

To change the current date setting manually

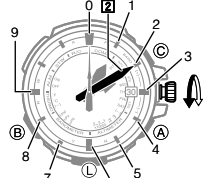
1. In the Timekeeping Mode, loosen the crown and then pull it out.
 - This will cause the **[3] Second Hand** to move to the city code of the currently selected Home City.
2. Hold down **(B)** for about one second.
 - The **[3] Second Hand** will indicate whether the current time is a.m. (**(A)**) or p.m. (**(P)**).
3. Press **(B)** twice.
 - The **[5] Day Indicator** will move slightly to indicate the date setting mode.
4. Rotate the crown to adjust the date setting.
5. After making sure the **[5] Day Indicator** is not moving, press **(B)**. This will enter the month setting mode.
 - The **[3] Second Hand** will move to the currently selected month.
6. Rotate the crown to adjust the month setting.



E-33



Setting the year (tens digit value)



Setting the year (ones digit value)

E-34

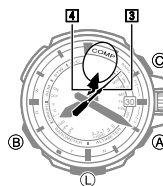
7. Press **(B)**. This will enter the year setting mode.
 - The **[1] Hour Hand** will move to the number that represents the tens digit value of the year and the **[2] Minute Hand** will move to the number that represents the ones digit value. The **[3] Second Hand** will move to 12 o'clock and stop there.
8. Rotate the crown to adjust the year setting. The tens digit value setting changes automatically in accordance with the ones digit value setting.
 - If you want to change the time setting at this time, press **(B)** and then perform the procedure starting from step 4 under "To change the current time setting manually" (page E-31).
9. After the setting is the way you want, push the crown back in and lock it.

Note

- The watch's built-in full automatic calendar makes allowances for different month lengths and leap years. Once you set the date, there should be no reason to change it except after you have the watch's rechargeable battery replaced or after power drops to Level 3.

Taking Direction Readings

The Digital Compass Mode uses a direction sensor to take direction readings. After a direction reading, the **[3] Second Hand** points towards magnetic north.



Hand Indicators

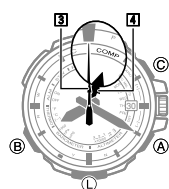
- [3] Second Hand:** Points to magnetic north.
- [4] Mode Hand:** Points to **COMP**.

Note

The **[1] Hour Hand** and **[2] Minute Hand** are stopped during a digital compass reading.

To take a direction reading

1. Make sure the watch is in the Timekeeping Mode.
 - For information about changing modes, see "Selecting a Mode" (page E-24).



2. While keeping the watch horizontal, press **(C)**.
 - This will enter the Digital Compass Mode, which is indicated by the **[4] Mode Hand** moving to **COMP**.
 - The **[3] Second Hand** will first move to 12 o'clock. Next it will move to indicate magnetic north.
 - For information about magnetic north, see "Compass Precautions" (page E-41).
 - The **[3] Second Hand** will continue to move for about 20 seconds after you start the digital compass operation as it adjusts its magnetic north reading. After that, the hand will stop at the final reading.
 - To update a reading, press **(C)** again.
3. Press **(B)** to return to the Timekeeping Mode.

Calibrating the Bearing Sensor Reading

You should calibrate the bearing sensor reading whenever you feel that the direction readings being produced by the watch are off. You can use either of two sensor reading calibration methods: bidirectional calibration or northerly calibration.

• Bidirectional Calibration and Northerly Calibration

Bidirectional calibration and northerly calibration calibrate the accuracy of the bearing sensor. 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).

E-36

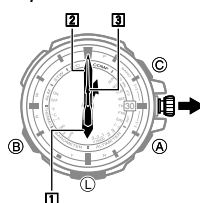
Important!

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.

Precautions about bidirectional calibration

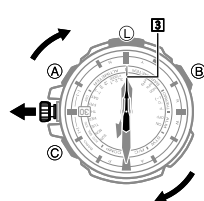
- You can use any two opposing directions for bidirectional calibration. You must, however, make sure that they are 180 degrees opposite each other. Remember that if you perform the procedure incorrectly, you will get wrong bearing sensor readings.
- Do not move the watch while calibration of either 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, loosen the crown and then pull it out.
 - The **[3] Second Hand** and **[2] Minute Hand** will move to 12 o'clock, and the **[1] Hour Hand** will move to 6 o'clock.
2. Press **(C)** to start calibration of Point 1.
 - After about seven seconds, the **[3] Second Hand** will move to **Y** (Yes) if Point 1 calibration was successful or to **N** (No) if it was not successful.
 - If the **[3] Second Hand** is pointing at **N** (unsuccessful), press **(C)** to perform Point 1 calibration again.
 - If the **[3] Second Hand** is pointing at **Y** (successful), it will move to 6 o'clock after about two seconds.

E-37

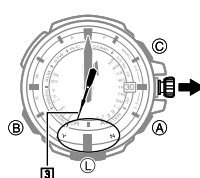
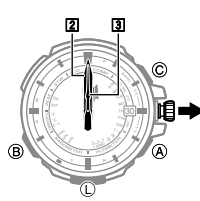


To perform northerly calibration

Important!

If you want to perform both northerly and bidirectional calibration, perform bidirectional calibration first, and then perform northerly calibration. This is necessary because bidirectional calibration cancels any existing northerly calibration setting.

3. Rotate the watch 180 degrees.
4. Press **(C)** to start calibration of Point 2.
 - After about seven seconds, the **[3] Second Hand** will move to **Y** (Yes) if Point 2 calibration was successful or to **N** (No) if it was not successful.
 - If the **[3] Second Hand** is pointing at **N** (unsuccessful), press **(C)** to return to Point 1 calibration.
5. After calibration is complete, push the crown back in and then lock it.
 - This will start a magnetic north reading operation.
 - Press **(B)** to return to the Timekeeping Mode.



1. In the Digital Compass Mode, loosen the crown and then pull it out.
 - The **[3] Second Hand** and **[2] Minute Hand** will move to 12 o'clock, and the **[1] Hour Hand** will move to 6 o'clock.
2. Press **(B)**. The **[1] Hour Hand** will move to 12 o'clock.
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 **(C)** to start calibration.
 - After about seven seconds, the **[3] Second Hand** will move to **Y** (Yes) if calibration was successful or to **N** (No) if it was not successful.
 - If the **[3] Second Hand** is pointing at **N** (unsuccessful), press **(C)** to perform calibration again.
5. After calibration is complete, push the crown back in and then lock it.
 - This will start a magnetic north reading operation.
 - Press **(B)** to return to the Timekeeping Mode.

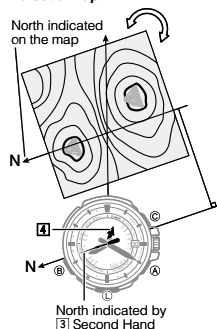
E-38

E-39

Using the Compass While Mountain Climbing or Hiking

Having an idea of your current location and your destination is essential 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.

To set a map



E-40

- Make sure the watch is in the Timekeeping Mode.
 - For information about changing modes, see "Selecting a Mode" (page E-24).
- While keeping the watch horizontal, press **(C)**.
 - The **[1] Mode Hand** will move to **COMP** and a direction reading operation will start.
 - After about three seconds, the **[3] Second Hand** will point to magnetic north.
 - To update a reading, press **(C)** again.
- Keeping the watch still, rotate the map so its north indication is pointing in the same direction as the **[3] Second Hand** of the watch.
- While comparing the contours on the map with what you can see around you, determine your current location and destination on the map.
 - Note that map reading skills and experience are required to determine your current location and destination on a map.

Compass Precautions



Storage

The precision of the bearing sensor may deteriorate if the watch becomes magnetized. Because of this, you should store the watch away from magnets or any other sources of strong magnetism, including: permanent magnets (magnetic accessories, etc.), household appliances, office equipment, mobile phones.

- Whenever you suspect that the watch may have become magnetized, perform the procedure under "To perform bidirectional calibration" (page E-37).

Magnetic North and True North

There are actually two types of north: magnetic north and true north. Magnetic north is the direction indicated by a compass, while true north is the direction towards the North Pole. Magnetic north and true north are not the same.

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 accessories, etc.), large concentrations of metal (metal doors, lockers, etc.), high-tensile wire, overhead wires, household appliances, office equipment, mobile phones.

- Accurate direction readings are impossible while in a train, boat, air plane, etc.
- Accurate readings are also impossible indoors, especially inside ferroconcrete structures. This is because the metal framework of such structures picks up magnetism from appliances, etc.

E-41

Taking Altitude Readings

The Altimeter Mode uses a pressure sensor to take altitude readings by measuring changes in air pressure. The result of an altitude reading is indicated by the hands of the watch.

How the Altimeter Measures Altitude

The altimeter can measure altitude based on its own preset values (initial default method) or using 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

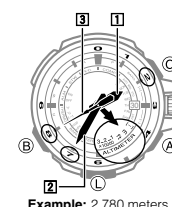
After you specify a reference altitude, the watch uses that value to convert barometric pressure readings to altitude (page E-46).

- When mountain climbing, you can specify a reference altitude 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 value.

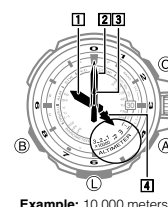


Hand Indicators

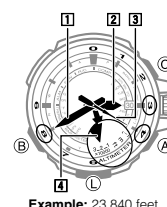
- [1] Hour Hand:** Indicates the 1000s digit value.
- [2] Minute Hand:** Indicates the 100s digit value.
- [3] Second Hand:** Indicates the 10s digit value.
- [4] Mode Hand:** Indicates the altitude unit as meters (**ALTIMETER m**) or feet (**ALTIMETER ft**). The hand will point to **ALTIMETER [-]** in the case of a negative reading, or to **ALTIMETER 1** (x 10000) for 10,000 feet, **2** (x 10000) for 20,000 feet, or **3** (x 10000) for 30,000 feet to indicate the altitude reading.
- For example, when the altitude is 10,000 meters, the **[4] Mode Hand** will point to **ALTIMETER m** (meters). The **[1] Hour Hand** points to 10. The **[2] Minute Hand** and **[3] Second Hand** points to 0.



Example: 2,780 meters



Example: 10,000 meters

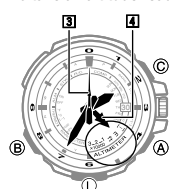


Example: 23,840 feet

E-42

E-43

To take an altitude reading

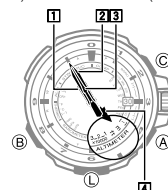


- Make sure the watch is in the Timekeeping Mode.
 - For information about changing modes, see "Selecting a Mode" (page E-24).
- Press **(A)**.
 - The **[4] Mode Hand** will move to **ALTIMETER m** (meters) or **ft** (feet). This indicates the currently selected altitude unit setting. For information about how to change the setting, see "To specify altitude, barometric pressure, and temperature units" (page E-62).
 - The **[3] Second Hand** will move to 0 indicating that altitude reading operation has started. The **[4] Mode Hand** will point to **ALTIMETER [-]** in the case of a negative reading, or to **ALTIMETER 1** (x 10000) for 10,000 feet, **2** (x 10000) for 20,000 feet, or **3** (x 10000) for 30,000 feet to indicate the altitude reading.
 - The **[3] Second Hand** will indicate the 10s digit value, the **[2] Minute Hand** the 100s digit value, and the **[1] Hour Hand** the 1000s digit value of the reading within 10 seconds.
- Press **(B)** to return to the Timekeeping Mode.

Note

- The unit for altitude readings by this watch is 10 meters (40 feet).
- The measurement range for altitude readings by this watch are -700 to 10,000 meters (-2,280 to 32,800 feet). The display range is -3,000 to 10,000 meters (-9,840 to 32,800 feet).
- Normally, altitude readings are in relation to an initial default reference value. You can also specify a different reference altitude value if you want. See "Calibrating the Altitude Sensor Reading" (page E-46).
- You can specify either meters (m) or feet (ft) for displayed altitude values. See "To specify altitude, barometric pressure, and temperature units" (page E-62).
- Whenever an altitude reading is outside the allowable measurement range, the hands of the watches will move to the positions below.

- [1] Hour Hand, [2] Minute Hand, [3] Second Hand:** 11 o'clock
- [4] Mode Hand:** **ALTIMETER m** (meters) or **ALTIMETER ft** (feet)



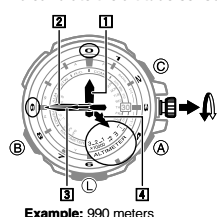
E-44

E-45

Calibrating the Altitude Sensor Reading

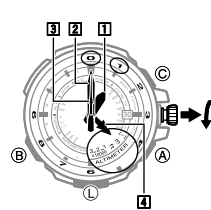
Altitude readings can be affected by changes in atmospheric pressure and temperature changes, and by changes in temperature at different altitudes. When on a mountain, it is a good idea to calibrate the altitude sensor reading with altitude values provided by signposts or from other sources.

To calibrate the altitude sensor reading



Example: 990 meters

- In the Altimeter Mode, loosen the crown and then pull it out.
 - If the watch is currently performing an altitude reading operation, the hands will move to indicate your current altitude.
 - If the hands do not indicate an altitude, pulling out the crown will take an altitude reading. The hands will indicate the result after about 10 seconds.
- Rotate the crown to adjust the indicated altitude reading to the desired reference altitude value.
 - The **[3] Second Hand** moves in 10-meter (40-foot) increments.
 - After you set an altitude reference value, you can clear it any time by performing step 1 of this procedure and then pressing **(A)** and **(C)** at the same time. This will cause the hands to move to the result of the last altitude reading the watch performed.
 - You can toggle the altitude unit between meters (m) and feet (ft) at this time by holding down **(C)** for two seconds.



Example: 1,000 meters

- After the setting is the way you want, push the crown back in and then lock it.
 - For information about the altitude reference value range, see the altitude display range on page E-45.

E-46

E-47

How does the altimeter work?

Generally, air pressure and temperature decrease as altitude increases. This watch bases its altitude readings on International Standard Atmosphere (ISA) values stipulated by the International Civil Aviation Organization (ICAO). These values define relationships between altitude, air pressure, and temperature.

Altitude	Air Pressure	Temperature
4000 m	616 hPa	About 8 hPa per 100 m
3500 m	701 hPa	About 9 hPa per 100 m
3000 m	795 hPa	About 10 hPa per 100 m
2500 m	899 hPa	About 11 hPa per 100 m
2000 m	1013 hPa	About 12 hPa per 100 m
1500 m		
1000 m		
500 m		
0 m		

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

Source: International Civil Aviation Organization

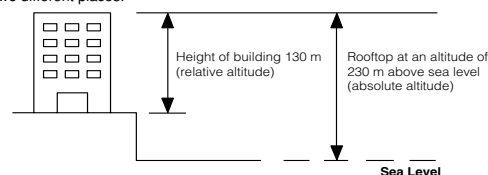
* Note that the following conditions will prevent you from obtaining accurate readings:

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.



E-48

E-49

Altimeter Precautions

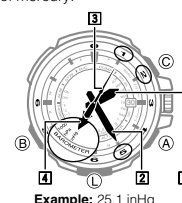
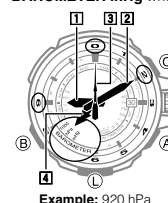
- This watch estimates altitude based on air pressure. This means that altitude readings for the same location may vary if air pressure changes.
- The semiconductor pressure sensor used by the watch for altitude readings is also affected by temperature. When taking altitude readings, do not subject the watch to temperature changes.
- Do not rely upon this watch for altitude readings 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 by the flight crew.

Taking a barometric pressure reading

The Barometer Mode uses a pressure sensor to take barometric pressure readings.
* The differential between two readings is also indicated.

Hand Indicators

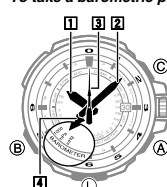
- 1 Hour Hand:** Indicates the 100s digit value when the pressure unit is hPa, and the 10s digit value when the unit is inHg.
- 2 Minute Hand:** Indicates the 10s digit value when the pressure unit is hPa, and the 1s digit value when the unit is inHg.
- 3 Second Hand:** Indicates the 1s digit value when the pressure unit is hPa, and the first digit value to the right of the decimal place when the unit is inHg.
- 4 Mode Hand:** Points to **BAROMETER hPa** when the pressure reading is less than 1000 hPa, points to **BAROMETER 1000** when the reading is 1000 hPa or higher, or points to **BAROMETER inHg** when the unit is inches of mercury.



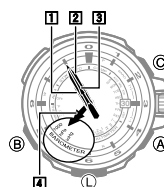
E-50

E-51

To take a barometric pressure reading



- Enter the Timekeeping Mode.
 - For information about changing modes, see "Selecting a Mode" (page E-24).
- Press (B) once.
 - The **4 Mode Hand** will move to **BAROMETER hPa** or **BAROMETER inHg**. This indicates the currently selected barometric pressure unit setting. For information about how to change the setting, see "To specify altitude, barometric pressure, and temperature units" (page E-62).
 - The **3 Second Hand** will move to 0 indicating that barometric pressure reading operation has started. The reading result will be displayed within 10 seconds.
 - If the barometric pressure differential was displayed the last time you exited the Barometer Mode, entering the Barometer mode displays the pressure differential.



Note

- This watch takes barometric pressure readings in 1 hPa (0.1 inHg) units.
- The barometric pressure measurement range and display range are 260 hPa to 1100 hPa (7.7 inHg to 32.5 inHg).
- Whenever a barometric pressure reading is outside the allowable measurement range, the hands of the watches will move to the positions below.
 - 1 Hour Hand, 2 Minute Hand, 3 Second Hand:** 11 o'clock
 - 4 Mode Hand:** **BAROMETER hPa** or **BAROMETER inHg**

Barometric Pressure Differential Indicator

Your watch automatically takes a barometric pressure reading every two hours (at the 30-minute mark of evenly numbered hours). If you take a manual reading, the **3 Second Hand** will indicate the difference between the last auto reading and the current manual reading. You can use the barometric pressure differentials to predict upcoming weather trends.
Positive differential: Indicates improving weather.
Negative differential: Indicates deteriorating weather.

E-52

E-53

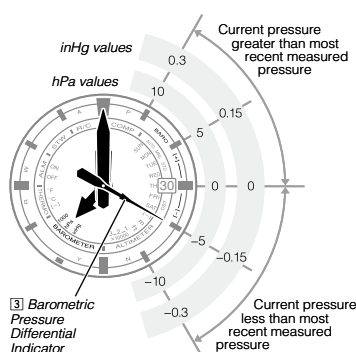
Hand Indicators

- 1 Hour Hand:** Points to 12 o'clock.
- 2 Minute Hand:** Points to 12 o'clock.
- 3 Second Hand:** Specifies the barometric pressure differential in the range of ± 10 hPa.
- 4 Mode Hand:** Points to **BAROMETER hPa**.

Reading the Barometric Pressure Differential Indicator

Pressure differential is indicated in the range of ± 10 hPa, in 1-hPa units.

- The nearby screen shot, for example, shows what the pointer would indicate when the calculated pressure differential is approximately -5 hPa (approximately -0.15 inHg).
- The hPa unit is always used for barometric pressure readings. You also can read the barometric pressure differential in inHg units as shown in the illustration.



To show and hide barometric pressure differential

- While a barometric pressure reading is displayed in the Barometer Mode, press (C).
 - Pressing (C) while an auto barometric pressure reading is indicated will take a new manual reading and cause the **3 Second Hand** to indicate the differential between the auto reading and the new manual reading.
- Each press of (C) at this time will cause the hands to toggle between indication of the barometric pressure reading and the barometric pressure differential.
 - The watch maintains the last barometric pressure auto reading in memory. The stored reading is replaced whenever a new auto reading is performed.

Note

- The barometric pressure differential unit is 1 hPa, and the display range is ± 10 hPa.
- If the barometric pressure differential is outside the ± 10 hPa display range, the **3 Second Hand** will move to 11 o'clock.

E-54

E-55

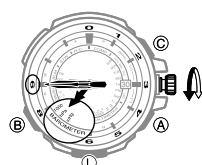
Calibrating the Barometric Pressure Sensor Reading

The pressure sensor of this watch is adjusted at the factory and so further adjustment is not required by you. However, if you notice that the pressure readings produced by the watch are different from readings produced by another instrument, you can use the procedure in this section to make corrections.

Important!

The watch will not be able to produce correct pressure readings if you make a mistake during the correction procedure. Check to make sure that the value you use for correction produces correct pressure readings.

To calibrate the Barometric Pressure Sensor Reading



Example: 999 hPa

- In the Barometer Mode, loosen the crown and then pull it out.
 - If the watch is currently performing a barometric pressure reading operation, the hands will move to indicate the current barometric pressure.
 - If the hands do not indicate a barometric pressure, pulling out the crown will take a barometric pressure reading. The **[1] Hour Hand**, **[2] Minute Hand**, and **[3] Second hand** will indicate the result after about 10 seconds.



Example: 1000 hPa

- Rotate the crown to move the hands so they match the barometric pressure reading produced by another instrument.
 - Rotating the crown causes the **[3] Second Hand** to move in 1 hPa (0.1 inHg) increments.
 - After you calibrate the barometric pressure sensor reading, you can clear calibration settings any time by performing step 1 of this procedure and then pressing **(A)** and **(C)** at the same time. This will cause the hands to move to the result of the last barometric pressure reading the watch performed.
 - You can toggle the barometric pressure unit between hPa and inHg at this time by holding down **(C)** for two seconds.
- After the setting is the way you want, push the crown back in and then lock it.
 - For information about the barometric pressure calibration value range, see the barometric pressure display range on page E-53.

Barometric Pressure Reading Precautions

- Sudden changes in temperature can affect the pressure sensor and produce errors in reading values.

E-56

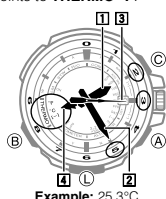
E-57

Taking Temperature Readings

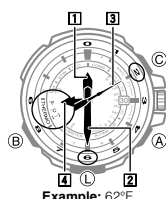
The Thermometer Mode uses a temperature sensor to take temperature readings. The result of a temperature reading is indicated by the hands of the watch.

Hand Indicators

- [1] Hour Hand:** When the unit is Celsius (°C), indicates the 10s digit value. When the unit is Fahrenheit (°F), indicates the 100s digit value.
- [2] Minute Hand:** When the unit is Celsius (°C), indicates the 1s digit value. When the unit is Fahrenheit (°F), indicates the 10s digit value.
- [3] Second Hand:** When the unit is Celsius (°C), indicates the first digit value to the right of the decimal point. When the unit is Fahrenheit (°F), indicates the 1s digit value.
- [4] Mode Hand:** When the unit is Celsius (°C) and the reading is 0°C or above, points to **THERMO °C**. When the reading is below 0°C, points to **THERMO [-]**. When the unit is Fahrenheit (°F), points to **THERMO °F**.

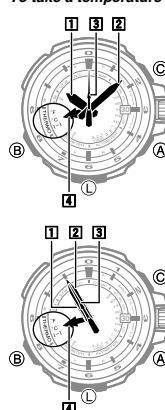


Example: 25.3°C



Example: 62°F

To take a temperature reading



Example: 29.9°C

- Enter the Timekeeping Mode.
 - For information about changing modes, see "Selecting a Mode" (page E-24).
- Press **(B)** twice.
 - The **[4] Mode Hand** will move to **THERMO °C** or **THERMO °F**. This indicates the currently selected temperature unit setting. For information about how to change the setting, see "To specify altitude, barometric pressure, and temperature units" (page E-62).
 - The **[3] Second Hand** will move to 0 indicating that the temperature reading operation has started. The reading result will appear within eight seconds.

Note

- The unit for temperature readings by this watch is 0.1°C (1°F).
- The measurement range for temperature readings by this watch is -10.0°C to 60.0°C (14°F to 140°F).
- Whenever a temperature reading is outside the allowable measurement range, the hands of the watches will move to the positions below.
 - [1] Hour Hand**, **[2] Minute Hand**, **[3] Second Hand**: 11 o'clock
 - [4] Mode Hand**: **THERMO °C** or **THERMO °F**

E-58

E-59

Calibrating the Temperature Sensor Reading

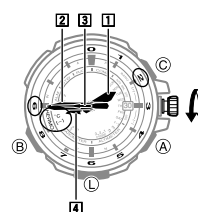
The temperature sensor of this watch is adjusted at the factory and so further adjustment is not required by you. However, if you notice that the readings produced by the watch are different from readings produced by another instrument, you can use the procedure in this section to make corrections.

Important!

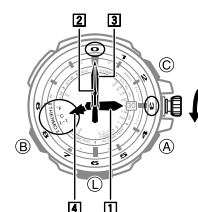
- The watch will not be able to produce correct temperature readings if you make a mistake during the correction procedure. Check to make sure that the value you use for correction produces correct temperature readings.
- Before performing the procedure below, remove the watch from your wrist leave it in the area where you will take the reading for about 20 to 30 minutes to allow the case temperature to become the same as surrounding air temperature.

To calibrate the temperature sensor reading

- In the Thermometer Mode, loosen the crown and then pull it out.
 - If the watch is currently performing a temperature reading operation, the hands will move to indicate the current temperature.
 - If the hands do not indicate a temperature, pulling out the crown will take a temperature reading. The hands will indicate the result after about 8 seconds.
- Rotate the crown to move the hands so they match the temperature reading produced by another instrument.
 - Rotating the crown causes the **[3] Second Hand** to move in 0.1°C (1°F) increments.
 - After you calibrate the temperature sensor reading, you can clear it any time by performing step 1 of this procedure and then pressing **(A)** and **(C)** at the same time. This will cause the hands to move to the result of the last temperature reading the watch performed.
 - You can toggle the temperature unit between Celsius (°C) and Fahrenheit (°F) at this time by holding down **(C)** for two seconds.



Example: 29.9°C



Example: 30.0°C

- After the setting is the way you want, push the crown back in and then lock it.
 - For information about the temperature calibration value range, see the temperature display range on page E-59.

Temperature Reading Precautions

- Temperature readings are affected by your body temperature, direct sunlight, and moisture. To achieve a more accurate temperature readings, 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.

E-60

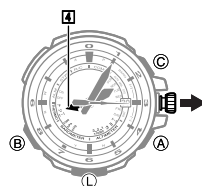
E-61

Specifying Altitude, Barometric Pressure, and Temperature Units

Use the procedure below to specify the altitude, barometric pressure, and temperature units to be used in the Altimeter Mode, Barometer Mode and the Thermometer Mode.

To specify altitude, barometric pressure, and temperature units

- Make sure the watch is in the mode for the type of unit you want to specify (Altimeter, Barometer, or Thermometer Mode).
 - For information about changing modes, see "Selecting a Mode" (page E-24).
- After loosening the crown, pull it out.
 - The **[4] Mode Hand** will move to the currently selected unit setting.
- Hold down **(C)** for about two seconds to toggle between the available unit settings.



When specifying this type of unit:	Press (C) to toggle between these settings:
Altitude	m (meters) and ft (feet)
Barometric Pressure	hPa (hectopascals) and inHg (inches of mercury)
Temperature	°C (Celsius) and °F (Fahrenheit)

- After the setting is the way you want, push the crown back in and lock it.

E-62

Using the Alarm

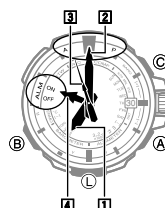
When the alarm is turned on, an alarm will sound for about 10 seconds each day when the time in the Timekeeping Mode reaches the preset alarm time. This is true even if the watch is not in the Timekeeping Mode.

Hand Indicators

- [1] Hour Hand:** Indicates the currently set alarm time hour.
- [2] Minute Hand:** Indicates the currently set alarm time minute.
- [3] Second Hand:** Indicates the current a.m. **(A)** and p.m. **(P)** setting.
- [4] Mode Hand:** Indicates the current alarm on **(ALM ON)** and off **(ALM OFF)** setting.

To change the alarm time setting

- Use **(B)** to select the Alarm Mode (ALM) as shown on page E-24.
 - The **[4] Mode Hand** will move to **ALM ON** or **ALM OFF** to indicate the current setting. The **[3] Second Hand** indicates the current **A** (a.m.) or **P** (p.m.) setting.
- After loosening the crown, pull it out.
 - The **[4] Mode Hand** will move to **ALM ON**.
 - You can toggle between the hour and minute setting mode, and the hour only setting mode by pressing **(B)**.



E-63

- Rotate the crown to set the alarm time.
 - With the crown pulled out, rotate the crown more than once in the direction that you want to move the hands. When you release the crown, the **[2] Minute Hand** will start to move at high speed. Note that high-speed reverse movement is not supported.
 - [1] Hour Hand** movement is synchronized with **[2] Minute Hand** movement.
- Press **[B]** to switch to the hour setting mode.
 - The **[1] Hour Hand** will move slightly left and right to indicate the **[1] Hour Hand** setting mode.
 - If you want to change the hour setting without changing the minute setting, skip step 4 above.
 - When adjusting the alarm time setting, check to make sure that the **[3] Second Hand** correctly indicates **A** (AM) or **P** (PM).
 - Rotate the crown to adjust the hour setting only.
 - With the crown pulled out, rotate the crown more than once in the direction that you want to move the hands. When you release the crown, the **[1] Hour Hand** will start to move at high speed. Note that high-speed reverse movement is not supported.
- After the setting is the way you want, push the crown back in and lock it.
 - The alarm always works based on the time kept in the Timekeeping Mode.

To turn the alarm on or off

In the Alarm Mode, press **[C]** to toggle the alarm between on and off. The current on/off setting is indicated by the **[4] Mode Hand**.

- The alarm will not sound while the watch is in the function sleep state when power is low.

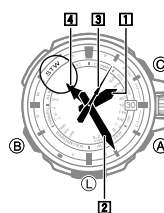
To stop the alarm

- Press any button.

E-64

Using the Stopwatch

The stopwatch measures elapsed time in units of 1 second up to 11 hours, 59 minutes, 59 seconds. When the maximum limit is reached, elapsed time returns to zero automatically and timing continues from there.



Hand Indicators

- [1] Hour Hand:** Indicates elapsed hours.
- [2] Minute Hand:** Indicates elapsed minutes.
- [3] Second Hand:** Indicates elapsed seconds.
- [4] Mode Hand:** Points to **STW**.

To perform elapsed time measurement

- Use **[B]** to select the Stopwatch Mode (STW) as shown on page E-24.
 - The **[4] Mode Hand** will move to **STW**.

- Perform the key operations shown below.



- After finish an elapsed time operation, press **[A]** to reset the stopwatch.
 - An ongoing stopwatch operation will continue even if you pull out the crown to perform some setting operation.
 - Button operations are disabled when the crown is pulled out while an elapsed time operation is in progress.

E-65

Adjusting Home Positions

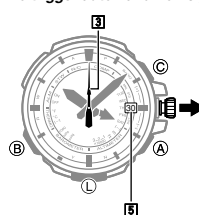
Strong magnetism or impact can cause the hands and/or day setting to be off, even if the watch is able to perform the signal receive operation.

Auto Home Position Adjustment

- Auto correction corrects the positions of all hands. The **[5] Day Indicator** must be corrected manually using the procedure under "To trigger auto hand home position adjustment manually" (page E-67).
- Around 2:55 a.m. each day, the watch performs a process that takes about 30 seconds to confirm that hand positions are correct. During this process, the **[4] Mode Hand** will move to 12 o'clock. If current hand positions are correct, normal hand movement will resume after about 30 seconds. If hand positions are not correct for some reason, the watch will correct them automatically and then resume normal hand movement.

To trigger auto hand home position adjustment manually

- In the Timekeeping Mode, loosen the crown and then pull it out.
- Hold down **[A]** for at least five seconds, until the **[3] Second Hand** moves to 12 o'clock.
- Release **[A]** after the **[3] Second Hand** moves to 12 o'clock.
 - This will start auto hand home position adjustment for all of the hands. Note that the **[5] Day Indicator** is not adjusted.
 - Home position adjustment is complete when all hands are at 12 o'clock.
- Push the crown back in and then lock it.
 - This returns to the Timekeeping Mode. The hands will return to their normal positions and resume normal timekeeping. Wait until everything stops moving before performing any operation.
 - If you want to adjust the **[5] Day Indicator** home position, skip step 4 above and proceed from step 2 under "To adjust the Day Indicator home position" on page E-68.



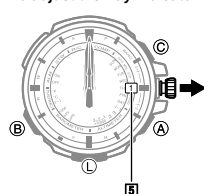
Important!

- Pushing the crown back in while hands are moving will cancel home position adjustment.
- If you do not perform any operation with the crown for about two minutes after pulling it out, crown operations will become disabled and hands will not move if you rotate the crown. If this happens, push the crown back in and then pull it out again.

E-66

To adjust the Day Indicator home position

- In the Timekeeping Mode, loosen the crown and then pull it out.
- Perform steps 2 and 3 under "To trigger auto hand home position adjustment manually" (page E-67).
- Press **[A]**.
 - This will cause the **[5] Day Indicator** to move to its current home position, which should be 1 centered in the indicator window.
 - If 1 is not centered in the **[5] Day Indicator** window, rotate the crown to center it.
 - Quickly rotating the crown at this time will cause high-speed movement of the **[5] Day Indicator**. Note that high-speed reverse movement is also supported.
 - To stop high-speed movement, rotate the crown again in the opposite direction.
- After the **[5] Day Indicator** setting is the way you want, push the crown back in and then lock it.
 - This returns to the Timekeeping Mode. The **[5] Day Indicator** will indicate the current date. Wait until it stops moving before performing any operation.



Important!

- Pushing the crown back in while the **[5] Day indicator** is moving will register hand adjustment but cancel day indicator adjustment.
- If you do not perform any operation with the crown for about two minutes after pulling it out, crown operations will become disabled and hands will not move if you rotate the crown. If this happens, push the crown back in and then pull it out again.

E-68

About the Auto Light Switch

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

Warning!

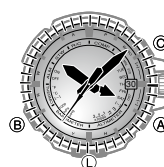
- Always make sure you are in a safe place whenever you are reading the face of watch using the auto light switch. Be especially careful when running or engaged in any other activity that can result in accident or injury. Also take care that sudden illumination by the auto light switch does not startle or distract others around you.**
- When you are wearing the watch, make sure that its auto light switch is disabled 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.**

Note

- This watch features a "Full Auto LED Light", so the auto light switch operates only when available light is below a certain level. Illumination does not turn on 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 the hands or **[5] Day indicator** is moving at high speed



Illumination



The face of the watch is illuminated 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 enabled (page E-71) for it to operate.

To turn on illumination manually

- Pressing **[L]** in any mode turns on illumination.
- You can use the procedure below to select either 1.5 seconds or three seconds as the illumination duration. When you press **[L]**, illumination will remain on for 1.5 or three seconds depending on the current setting.
 - Pressing **[L]** turns on illumination even if auto light switch operation is disabled.
 - Note that illumination will not turn on while a sensor taking a reading or during high-speed movement of the hands or day indicator.

To change the illumination duration

- In the Timekeeping Mode, loosen the crown and then pull it out.
 - The **[3] Second Hand** will point to the city code of the currently select Home City, and the **[4] Mode Hand** will point to the current standard time/summer time setting.
- Hold down **[L]** for about three seconds until the watch beeps once or three times.
 - Releasing **[L]** after one beep selects 1.5 seconds. Releasing it after three beeps selects three seconds.
- After the setting is the way you want, push the crown back in and then lock it.

E-69

To enable or disable the auto light switch

While in the Timekeeping Mode, hold down **[L]** for at least three seconds, until the watch beeps once or twice.

- Releasing **[L]** after one beep disables the auto light switch. Releasing it after two beeps enables it.
- The auto light switch disables automatically whenever battery power drops to Level 2 (page E-13).

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.
- Frequent use of illumination runs down the battery.

Auto light switch precautions

- 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. To avoid running down the battery, disable the auto light switch whenever engaging in activities that might cause frequent illumination.
- Note that wearing the watch under your sleeve while the auto light switch is enabled can cause frequent illumination and can run down the battery.

E-70

E-71



- 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 after the preset illumination duration (page E-69), 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.
- 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.

E-72

■ Hands suddenly stop moving. Button operation also is disabled.

The watch may be in the power recovery mode (page E-13). Do not perform any operation until the hands return to their normal positions (in about 15 minutes). The hands should return to their correct positions when normal operation returns. To help power recover, leave the watch in a location where it is exposed to light.

■ The current time setting is off by hours.

Your Home City setting may be wrong. Check your Home City setting and correct it, if necessary (page E-27).

■ The current time setting is off by one hour.

- The current standard time (STD)/summer time (DST) is wrong (page E-28).
- If you are using in the watch in an area where time calibration signal reception is not possible, you may need to change your Home City's **STD** (standard time)/**DST** (daylight saving time) setting manually. Use the procedure under "To select Auto or Manual Standard Time/Daylight Saving Time Switching" (page E-29) to change the **STD/DST** setting.

■ The hands and/or day indications are off.

This could indicate that the watch has been exposed to magnetism or strong impact, which has caused problems with proper hand and day alignment. Adjust the watch's hand and day home position alignment (page E-66).

■ Nothing happens when I press a button.

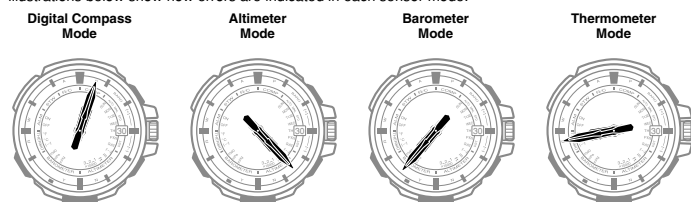
Button operation may become disabled after you perform a crown operation. If this happens, rotate the crown slightly to correct the problem.

E-74

Sensor modes

■ An error is indicated during sensor operation.

Subjecting the watch to strong impact can cause sensor malfunction or improper contact of internal circuitry. When this happens an error is indicated and the sensor operation cannot be performed. The illustrations below show how errors are indicated in each sensor mode.



- During digital compass operations, nearby strong magnetism can cause an error to be indicated.
- If the error is indicated during a measurement, restart the measurement. If an error is indicated when you restart the measurement, it probably means that there is a problem with the sensor or internal circuitry.

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

E-76

Time Calibration Signal

The information in this section applies only when **LON** (LONDON), **PAR** (PARIS), **ATH** (ATHENS), **HNL** (HONOLULU), **ANC** (ANCHORAGE), **LAX** (LOS ANGELES), **DEN** (DENVER), **CHI** (CHICAGO), **NYC** (NEW YORK), **HKG** (HONG KONG), or **TYO** (TOKYO) is selected as the Home City. You need to adjust the current time manually when any other city is selected as the Home City.

■ The [3] Second Hand indicates N (NO) when I check the result of the latest receive operation.

Possible Cause	Remedy	Page
• You are wearing or moving the watch, or performing a button operation during the signal receive operation. • The watch is in an area with poor reception conditions.	Keep the watch in an area where reception conditions are good while the signal receive operation is being performed.	E-18
You are in an area where signal reception is not possible for some reason.	See "Approximate Reception Ranges".	E-17
The calibration signal is not being transmitted for some reason.	• Check the website of the organization that maintains the time calibration signal in your area for information about its down times. • Try again later.	—

■ The current time setting changes after I set it manually.

You may have the watch configured for Auto Receive of the time calibration signal (page E-21), which will cause the time to be adjusted automatically according to your currently selected Home City. If this results in the wrong time setting, check your Home City setting and correct it, if necessary (page E-27).

E-78

Troubleshooting

Hand Movement and Position

■ I lost track of what mode the watch is in.

Refer to "Selecting a Mode" (page E-24). Pushing the crown back in and lock it. Next, hold down [B] for about two seconds to return to the Timekeeping Mode.

■ The [3] Second Hand is jumping at two-second intervals.

■ All the watch's hands are stopped at 12 o'clock and none of the buttons work.

Power may be low. Expose the watch to light until the [3] Second Hand starts moving smoothly, at one-second intervals (page E-12).

■ The hands of the watch suddenly start moving at high speed, even when I do not perform any operation.

This could be due to any one of the following causes. In all cases, the hand movement does not indicate malfunction, and should stop shortly.

- The watch is recovering from a sleep state (page E-15).
- The time setting is being adjusted following a successful auto time calibration signal receive operation (page E-16).
- The watch is returning to the Timekeeping Mode from another mode.

■ Hand movement is abnormal.

The watch is auto correcting hand positions. Normal hand movement will resume after the correction process is complete.

Crown Operations

■ Nothing happens when I rotate the crown while it is pulled out.

You did not perform any operation for more than three minutes while the crown was pulled out, causing operation to become disabled automatically. Push the crown in and pull it back out again to re-enable operation. See "Using the Crown" (page E-3).

Operation Tone

■ The operation tone does not sound when it should.

Battery power is low. Expose the watch to light to charge it. See "Charging the Watch" (page E-11).

■ What causes incorrect direction readings?

- The watch may have been exposed to magnetism. Calibrate the direction sensor.
- A 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 such objects and try again.

■ What causes different direction readings to produce different results at the same location?

- Magnetism generated by nearby digital noise sources (such as high-tension power lines) can interfere with the detection of terrestrial magnetism. Move away from the source of the digital noise and try again.

■ Why am I having problems taking direction readings indoors?

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.

Charging

■ The watch does not resume operation after I expose it to light.

This can happen after the power level drops to Level 3 (page E-12). Continue exposing the watch to light until the [3] Second Hand starts moving smoothly (at one-second intervals).

■ The [3] Second Hand starts to move at one-second intervals, but then suddenly returns to jumping at two-second intervals.

The watch probably is not sufficiently charged yet. Continue keeping it exposed to light.

■ Auto Receive is not performed or I cannot perform Manual Receive.

Possible Cause	Remedy	Page
The watch is not in the Timekeeping Mode.	Auto Receive will not be performed if the watch is not in the Timekeeping Mode.	E-24
Your Home City setting is wrong.	Check your Home City setting and correct it, if necessary.	E-27
There is not enough power for signal reception.	Expose the watch to light to charge it.	E-11

■ Time calibration signal reception is successful, but the time and date settings are wrong.

Possible Cause	Remedy	Page
Your Home City setting is wrong.	Check your Home City setting and correct it, if necessary.	E-27
The date and time settings may have been affected by strong magnetism or impact.	Adjust the home positions of the hands and day indicator.	E-66

Alarm

■ The alarm does not sound.

- The alarm is turned off. Turn on the alarm (page E-64).
- Power may be low. Expose the watch to light until the [3] Second Hand starts moving smoothly, at one-second intervals (page E-12).
- The crown may be pulled out. Push the crown back in.
- The a.m. (A)/p.m. (P) setting of the watch may be wrong. See "To change the alarm time setting" (page E-63).

E-73

E-75

E-77

E-79

Operation Guide 5242

CASIO®

Specifications

Accuracy at normal temperature: ± 15 seconds a month (with no signal calibration)

Timekeeping: Hour, minutes (hand moves every 10 seconds), seconds, day, day of the week
Calendar system: Full Auto-calendar pre-programmed from the year 2000 to 2099
Other: Home City code (can be assigned one of 29 city codes and Coordinated Universal Time); Daylight Saving Time (summer time) / Standard Time

Time Calibration Signal Reception: Auto receive up to six times a day (5 times a day for the Chinese calibration signal; Remaining auto receives cancelled as soon as one is successful); Manual receive
Receivable Time Calibration Signals:
Mainflingen, Germany (Call Sign: DCF77, Frequency: 77.5 kHz); Anthorn, England (Call Sign: MSF, Frequency: 60.0 kHz); Fukushima, Japan (Call Sign: JJY, Frequency: 40.0 kHz); Fukuoka/Saga, Japan (Call Sign: JJY, Frequency: 60.0 kHz); Fort Collins, Colorado, the United States (Call Sign: WWVB, Frequency: 60.0 kHz); Shangqiu City, Henan Province, China (Call Sign: BPC, Frequency: 68.5 kHz)

Compass: 20 seconds continuous reading; North indication by hand; Calibration (bidirectional, northerly); Manual reading

Altimeter:
Measurement range: -700 to 10,000 m (or -2,280 to 32,800 ft.) without reference altitude
Display range: -3,000 to 10,000m (or -9,840 to 32,800 ft.)
Negative values can be caused by readings produced based on a reference altitude or due to atmospheric conditions.
Measurement unit: 10 m (or 40 ft.)
Other: Calibration; Manual reading

E-80

E-81

Pressure Sensor Precision:

	Conditions (Altitude)	Altimeter	Barometer
Fixed temperature	0 to 6000 m 0 to 19680 ft.	± (altitude differential × 2% + 15 m) m ± (altitude differential × 2% + 50 ft.) ft.	± (pressure differential × 2% + 2 hPa) hPa
	6000 to 10000 m 19680 to 32800 ft.	± (altitude differential × 2% + 25 m) m ± (altitude differential × 2% + 90 ft.) ft.	± (pressure differential × 2% + 0.059 inHg) inHg
Effect of variable temperature	0 to 6000 m 0 to 19680 ft.	± 50 m every 10°C ± 170 ft. every 50°F	± 5 hPa every 10°C
	6000 to 10000 m 19680 to 32800 ft.	± 70 m every 10°C ± 230 ft. every 50°F	± 0.148 inHg every 50°F

* Values are guaranteed for a temperature range of -10°C to 40°C (14°F to 104°F).
* Precision is lessened by strong impact to either the watch or the sensor, and by temperature extremes.

Temperature Sensor Precision:

±2°C (±3.6°F) in range of -10°C to 60°C (14°F to 140°F)

Alarm: Daily alarm

Stopwatch:

Measuring unit: 1 second
Measuring capacity: 11:59' 59"
Measuring modes: Elapsed time

E-82

E-83

Illumination: LED (light-emitting diode); Selectable illumination duration; Auto Light Switch (Full Auto LED Light operates only in the dark)

Other: Power Saving function; Low battery alert (second hand jumping at 2-second intervals); Auto hand position adjustment

Power Supply: Solar panel and one rechargeable battery

Approximate battery operating time: 7 months (from full charge to Level 3) under the following conditions:

Alarm: 10 seconds/day
Light: 1.5 seconds (one operation)/day
Second hand operation: 18 hours/day
Time calibration receive: 4 minutes/day
Direction reading: 20 times/month (20 seconds continuous reading)
Readings using the barometric pressure differential indicator: 12 times/day
Climbs: Once (30 altituded readings)/month

Frequent use of illumination runs down the battery. Particular care is required when using the auto light switch (page E-71).

City Code Table

City Code Table

City Code	City	UTC Offset/ GMT Differential
PPG (PAGO PAGO)	Pago Pago	-11
HNL (HONOLULU)	Honolulu	-10
ANC (ANCHORAGE)	Anchorage	-9
LAX (LOS ANGELES)	Los Angeles	-8
DEN (DENVER)	Denver	-7
CHI (CHICAGO)	Chicago	-6
NYC (NEW YORK)	New York	-5
SCL (SANTIAGO)	Santiago	-4
RIO	Rio De Janeiro	-3
RAI (PRAIA)	Praia	-1
UTC		0
LON (LONDON)	London	
PAR (PARIS)	Paris	+1
ATH (ATHENS)	Athens	+2
JED (JEDDAH)	Jeddah	+3
THR (TEHRAN)	Tehran	+3.5
DXB (DUBAI)	Dubai	+4
KBL (KABUL)	Kabul	+4.5
KHI (KARACHI)	Karachi	+5
DEL (DELHI)	Delhi	+5.5

L-2

City Code	City	UTC Offset/ GMT Differential
KTM (KATHMANDU)	Kathmandu	+5.75
DAC (DHAKA)	Dhaka	+6
RGN (YANGON)	Yangon	+6.5
BKK (BANGKOK)	Bangkok	+7
HKG (HONG KONG)	Hong Kong	+8
TYO (TOKYO)	Tokyo	+9
ADL (ADELAIDE)	Adelaide	+9.5
SYD (SYDNEY)	Sydney	+10
NOU (NOUMEA)	Noumea	+11
WLG (WELLINGTON)	Wellington	+12

* Based on data as of December 2010.
* The rules governing global times (UTC offset and GMT differential) and summer time are determined by each individual country.

L-3