

# Operation Guide 2872

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 and keep it on hand for later reference when necessary.

### Expose the watch to bright light to charge its battery before using it.

You can use this watch even as its battery is being charged by exposure to bright light.

- Be sure to read "Power Supply" of this manual for important information you need to know when exposing the watch to bright light.

## 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.

### If the digital display of the watch is blank...

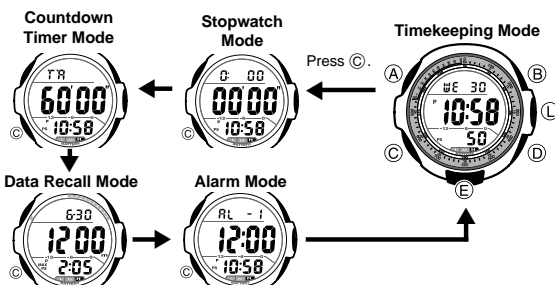


If the **PS** indicator is on the display (either flashing or steady), it means that the watch's Power Saving function has turned it off to conserve power. Power Saving automatically turns off the display and enters a sleep state whenever the watch is left for a certain period where it is dark.

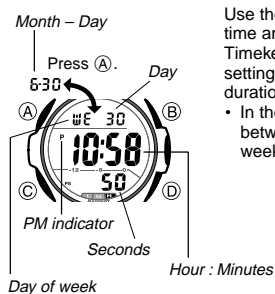
- The initial factory default setting is Power Saving on.
- The watch will recover from the sleep state if you move it to a well-lit area,\* if you press any button, or if you angle the watch towards your face for reading.
- \*It can take up to two seconds for the display to turn on.
- See "Power Saving" for more information.

## General Guide

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



## Timekeeping

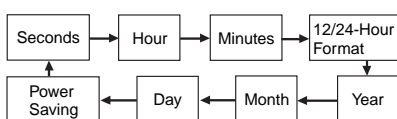


Use the Timekeeping Mode to view the current time and date. You also need to enter the Timekeeping Mode to configure timekeeping settings, as well as the display illumination duration and Power Saving setting.

- In the Timekeeping Mode, press **A** to toggle between the month-day and the day of the week-day at the top of the display.

### To set the time and date

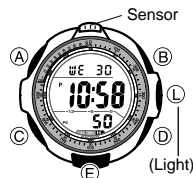
1. In the Timekeeping Mode, hold down **A** until the seconds start to flash, which indicates the setting screen.
2. Press **C** to move the flashing in the sequence shown below to select other settings.



### 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.

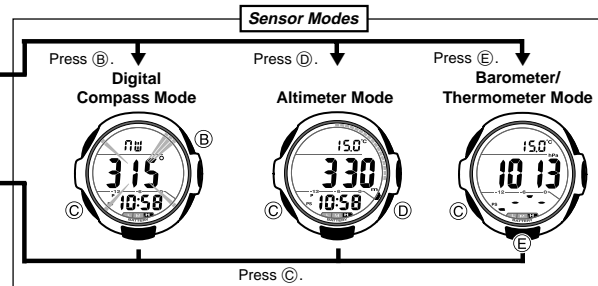
## About This Manual



- 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.



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



3. When the timekeeping setting you want to change is flashing, use **D** and/or **B** to change it as described below.

- The following steps explain how to configure timekeeping settings only.

Screen	To do this:	Do this:
LT - P 10:58 58	Reset the seconds to 00	Press <b>D</b> .
	Change the hour or minutes	Use <b>D</b> (+) and <b>B</b> (-).
12H	Toggle between 12-hour (12H) and 24-hour (24H) timekeeping	Press <b>D</b> .
6:30 2004	Change the year, month, or day	Press <b>D</b> (+) and <b>B</b> (-).

4. After the settings are the way you want, press **A** to exit the setting screen.

### Note

- For information about specifying how long the display remains illuminated, see "To specify the illumination duration".
- For details about configuring settings for the Power Saving feature, see "Power Saving".
- 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 year can be set in the range of 2000 to 2039. The day of the week is calculated automatically in accordance with the date you set.
- 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 4.

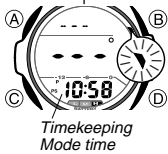
## Digital Compass

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

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

### To enter and exit the Digital Compass Mode

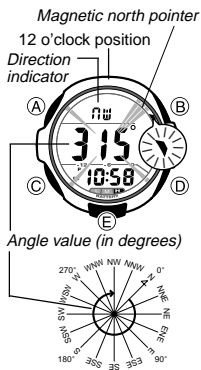
12 o'clock position



Timekeeping Mode time

1. While in the Timekeeping or in any of the other sensor modes, press (B) to enter the Digital Compass Mode.
  - At this time, the watch immediately starts a Digital Compass operation. After about two seconds, letters appear on the display to indicate the direction that the 12 o'clock position of the watch is pointing.
2. Press (C) to return to the Timekeeping Mode.

### To take a direction reading



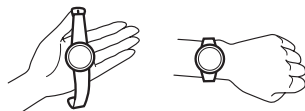
Angle value (in degrees)

1. Enter the Digital Compass Mode.
2. Place the watch on a flat surface or, if you are wearing the watch, make sure that your wrist is horizontal (in relation to the horizon).
3. Point the 12 o'clock position of the watch in the direction you want to measure.
4. Press (B) 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.

- During measurement, the watch displays an angle value, a direction indicator, and four direction pointers, which change dynamically when the watch is moved. After measurement is complete, the angle value, direction indicator, and four direction pointers are frozen in accordance with the last measurement.
- The indicator flashes on the display while a measurement is in progress.

### 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 is  $\pm 11$  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 temporarily paused while the watch is performing an alert operation (daily alarm, Hourly Time Signal, countdown timer alarm) or while the watch's backlight is turned on (by pressing (D)). 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

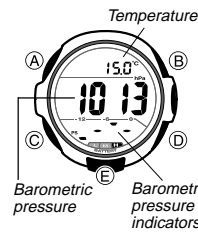
- See "Digital Compass Precautions" for other important information about taking direction readings.

## 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 temperature sensor and the pressure sensor if you suspect that readings are incorrect.

### To take barometric pressure and temperature readings



Pressing (E) in the the Timekeeping or in any of other sensor modes enters the Barometer/Thermometer Mode and automatically starts taking barometric pressure and temperature measurements.

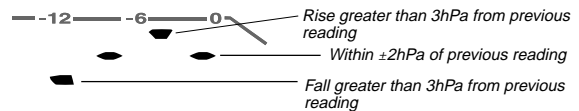
- It can take up to four or five seconds for the barometric pressure reading to appear after you enter the Barometer/Thermometer Mode.
- Barometric pressure is displayed in units of 1hPa (or 0.05 inHg).

- 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 be displayed again 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 be displayed again as soon as the measured temperature is within the allowable range.
- In some areas, barometric pressure is expressed in millibars (mb) instead of hecto-pascals (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 change the barometric pressure and temperature units".
- See "Barometer and Thermometer Precautions" for important precautions.

### Barometric Pressure Indicators

The watch's barometric pressure indicators graphically show you whether the barometric pressure for up to the last 15 hours has been rising, holding steady, or falling. Since changes in barometric pressure signal changes in the atmosphere, you can predict upcoming weather with reasonable accuracy by looking at the current tendency of barometric pressure.

The barometric pressure indicator display area of the watch has three lines: top, middle, and bottom. The location of each indicator tells you whether barometric pressure is rising, steady, or falling.



### How to Interpret Barometric Pressure Indicators

- The rightmost indicator is the newest indicator, the leftmost indicator is the oldest indicator.

Rising pressure generally means improving weather.

Falling pressure generally means deteriorating weather.

- The locations of the indicators, not their pattern, indicates barometric pressure tendencies.
- A series of multiple indicators in the top line of the barometric pressure indicator display area indicates a series of rising pressure readings. It does not indicate steady pressure at a high level.
- A series of multiple indicators in the bottom line of the barometric pressure indicator display area indicates a series of falling pressure readings. It does not indicate steady pressure at a low level.
- A movement of indicators from the top line to the middle line does not indicate falling pressure, and a movement of indicators from the bottom line to the middle line does not indicate rising pressure. A move to the middle line indicates that the current pressure measurement is relatively unchanged (within  $\pm 2$ hPa) from the previous measurement. Rising pressure is not indicated until an indicator appears in the top line, and falling pressure is not indicated until an indicator appears in the bottom line.
- Steady pressure is indicated by a series of indicators in the middle line.

### Notes

- Though you can configure the watch to display barometric pressure in units of hPa or inHg, the barometric pressure indicator positions are always determined based on  $\pm 3$  hPa changes in barometric pressure.
- No indicator is plotted if a measurement operation cannot be performed due to sensor malfunction, low battery power, because of the watch is in the function sleep state, or any other reason.

## 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.
- The barometer automatically takes measurements every three hours (starting from midnight), regardless of what mode you are in. The results of these measurements are used for positioning indicators in the barometric pressure indicator display area.
- You can also perform a barometric pressure and temperature measurement at any time by pressing (E) in the Barometer/Thermometer Mode.

## Barometer and Thermometer Precautions

- The pressure sensor built into this watch measures changes in air pressure, which you can then apply to your own weather predictions. It is not intended for use as a precision instrument in official weather prediction or reporting applications.
- Sudden temperature changes can affect pressure sensor readings.
- Temperature measurements are affected by your body temperature (while you are wearing the watch), direct sunlight, and moisture. To achieve a more accurate temperature measurement, remove the watch from your wrist, place it in a well ventilated location out of direct sunlight, and wipe all moisture from the case. It takes approximately 20 to 30 minutes for the case of the watch to reach the actual surrounding temperature.

## Altimeter

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

### Important!

- This watch estimates altitude based on air pressure. This means that altitude readings for the same location may vary if air pressure changes.
- This watch employs a semiconductor pressure sensor, which is affected by temperature changes. Make sure that the watch is not being exposed to temperature changes while you are taking altitude measurements.
- To avoid the effect of sudden temperature changes on measurement, wear the watch so it is in direct contact with your wrist during measurement.
- Do not rely upon this watch for altitude measurements or perform button operations while engaging in sports where there are sudden altitude changes, while sky diving, hang gliding, or paragliding, or while riding a gyrocopter, glider, or any other aircraft.
- Do not use this watch for measuring altitude in applications that demand professional or industrial level precision.
- 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.

## How the Altimeter Works

### With the Preset Values (No Reference Altitude)

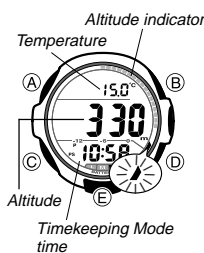
- The watch measures the air pressure at your current location and uses the built-in ISA values to convert it to the equivalent altitude.

### With a Reference Altitude

- If you set a reference altitude, the watch uses that value when calculating altitude based on air pressure.
- To determine the height of a tall building, set the reference altitude to 0 on the ground floor. Note, however, that you may not be able to get a good reading if the building is pressurized or air-conditioned.
- When mountain climbing, you can set the reference value in accordance with a marker along the way or altitude information from a map. After you do this, the altitude readings produced by the watch will be more accurate than they would be without a reference altitude.



## To take an altitude reading



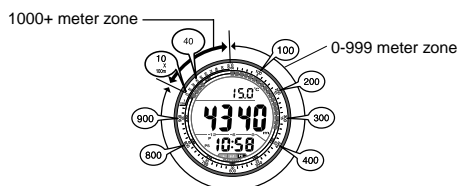
Pressing (D) in the Timekeeping Mode or in any of the other sensor modes enters the Altimeter Mode and automatically starts altitude measurement.

- It can take up to four or five seconds for the altitude reading to appear after you enter the Altimeter Mode.
- The Altimeter Mode screen also displays the current temperature. See "Barometer/Thermometer" for more information.
- During the first three minutes after entering the Altimeter Mode, the ▲ indicator flashes on the display and measurements are taken every five seconds. After that, the ▲ indicator disappears as measurements are taken every two minutes.
- Pressing (D) causes the measurement operation to restart from the beginning of the cycle described above.
- Altitude is displayed in units of 5 meters (20 feet).
- The measurement range for altitude is -700 to 10,000 meters (-2,300 to 32,800 feet).
- The measured altitude may be a negative value in cases where there is a reference altitude value set or because of certain atmospheric conditions.
- The displayed altitude value changes to - - - - meters (or feet) if a measured altitude falls outside the measurement range. The altitude value will be displayed again as soon as the measured altitude is within the allowable range.
- You can change the unit of measurement for the displayed altitude values between meters (m) and feet (ft). See "To change the altitude unit".

## Altitude Indicator

In the Altimeter Mode, the altitude indicator shows the current altitude reading in meters (m). As shown in the illustration below, the altitude indicator is divided into two zones: one for 0 to 999 meters, and one for 1000 to 10,000 meters.

Though you can specify either meters or feet for the watch's altitude measurements, the altitude indicator always shows altitude in meters.



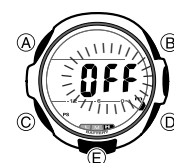
The above altitude indicator indicates an altitude of approximately 4,340 meters.

- The 0-999 meter zone starts from the 12 o'clock position (0 meters), and indicates altitudes in 20-meter units.
- The 1000+ meter zone indicates altitudes in 1000-meter units.

## Setting a Reference Altitude

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

### To set a reference altitude



1. In the Altimeter Mode, hold down (A) until OFF (flashing) appears or until the display goes blank. This is the setting screen.
  - If the display goes blank, it means there is a reference altitude value. Release (A) and wait for four or five seconds until the value appears.
2. Press (D) (+) or (B) (-) 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 (D) and (B) 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 (A) to exit the setting screen.

## Altitude Records

Storing altitude data in memory creates an altitude record. If a reading is greater than all of the other altitude readings currently stored in memory, it is stored in the maximum altitude record. The following describes the contents of each type of record.

Recording date (month, day), time (hour, minutes), altitude, and altitude indicator: Up to 41 records

Maximum altitude (including recording date and time) and altitude indicator: 1 record

- The maximum altitude record shows information about the altitude record that has the greatest altitude value. The maximum altitude record is updated any time a reading produces an altitude that is greater than that of the current maximum altitude record.

### To store an altitude record in memory

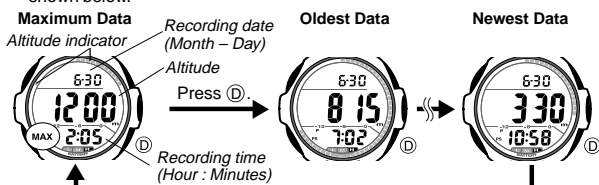


In the Altimeter Mode, hold down (D) for about one second until the watch beeps twice. This indicates that a record of the altitude reading has been stored in memory.

- You can recall data in memory using the Data Recall Mode.
- Note that there is enough memory to store a total of 41 records. If there are already 41 records in memory, storing another one automatically deletes the oldest record to make room for the new one.

### To view altitude record data

- Use (C) to enter the Data Recall Mode.
- Press (D) to cycle through the altitude record screens in the sequence shown below.



- The maximum altitude record appears first. After that, each press of (D) scrolls through records in sequence, starting from the oldest record.
- If an error occurs while altitude data is being stored in memory or if there is no altitude data in memory, - - - - is shown for the measured altitude value on the corresponding altitude record screen.

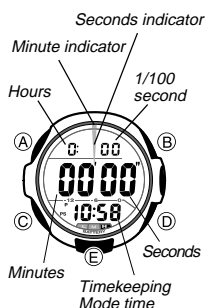
### Deleting the Maximum Altitude Record Data

Use the following procedure when you want to delete the data in the maximum altitude record. Note that you can delete maximum altitude record data only. You cannot delete the data of any of the other altitude records.

#### To delete the maximum altitude record data

- Use the procedure under "To view altitude record data" to display the maximum altitude record.
  - The maximum altitude record is the one with MAX next to the recording time.
- Hold down (A) until - - - - appears in place of the maximum altitude value. This indicates that the data is deleted.

## Stopwatch

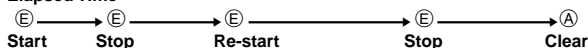


The stopwatch lets you measure elapsed time, split times, and two finishes. Display of the minute and seconds indicators can be turned on or off.

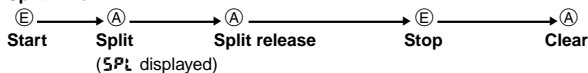
- The display range of the stopwatch is 9 hours, 59 minutes, 59.99 seconds.
- The stopwatch continues to run, restarting from zero after it reaches its limit, until you stop it.
- The stopwatch measurement operation continues even if you exit the Stopwatch Mode.
- Exiting the Stopwatch Mode while a split 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 (C).

### To measure times with the stopwatch

#### Elapsed Time



#### Split Time



#### Two Finishes

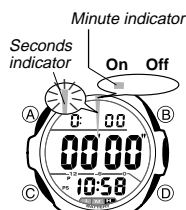


## Minute and Seconds Indicators

The minute and seconds indicators graphically indicate elapsed time values in the Stopwatch Mode. The seconds indicator acts like the second hand of an analog stopwatch, and moves on the display to indicate the seconds count. The minute indicator acts like the minute hand of an analog stopwatch, and moves on the display to indicate the minute count.

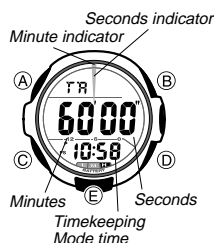
- You can use the following procedure to turn display of the minute and seconds indicators on and off.

### To turn display of the Stopwatch Mode minute and seconds indicators on and off



- With the Stopwatch Mode cleared to all zeros, hold down (A) until the seconds indicator starts flashing. This is the setting screen.
- Press (D) to toggle display of the minute and seconds indicators on (indicated when the minute indicator is displayed) and off (minute indicator not displayed).
- When the setting is the way you want, press (A) to exit the setting screen.

## Countdown Timer



You can set a countdown timer start time in the range of one minute to 60 minutes. An alarm sounds when the countdown reaches zero. An auto-repeat feature causes the countdown to restart automatically when the end of a countdown is reached, and a progress beeper signals the progress of the countdown.

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

### Configuring the Countdown Timer

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

- Countdown start time
- Auto-repeat on/off
- Progress beeper on/off
- Minute, seconds indicator display on/off

#### Countdown start time

You can set a countdown start time in the range of one minute to 60 minutes, in one-minute increments.

#### Auto-repeat

Whenever zero is reached, the watch beeps and auto-repeat automatically restarts the countdown from the countdown start time you set. Turning off auto-repeat causes the countdown to stop and the countdown start time to appear on the display when the end of the countdown is reached.

#### Progress Beeper

When the progress beeper is turned on, the watch beeps at minute 10, 5, 4, 3, 2, and 1, of the countdown, and at second 50, 40, 30, 20, 10, 5, 4, 3, 2, and 1 of the final minute of the countdown.

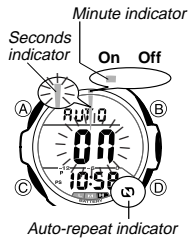
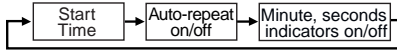
## Minute and Seconds Indicators

The minute and seconds indicators graphically indicate the Countdown Timer Mode minutes and seconds as they are counted down. You can turn display of these indicators on or off.

### To configure countdown timer settings



- While the countdown start time is on the display in the Countdown Timer Mode, hold down (A) until the minute 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.
- Press (C) to move the flashing in the sequence shown below to select other settings.



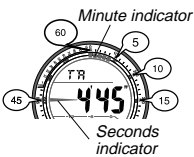
- Perform the following operations, depending on which setting is currently selected on the display.
  - While the minute setting is flashing, use (D) (+) or (B) (-) to change it.
  - While the auto-repeat on/off setting (ON or OFF) is flashing on the display, press (D) to toggle auto-repeat on (ON) and off (OFF).
  - While the seconds indicator is flashing, press (D) to toggle display of the minute and seconds indicators on (indicated when the minute indicator is displayed) and off (minute indicator not displayed).
- Press (A) to exit the setting screen.
  - The auto-repeat indicator (ON) appears on the display while auto-repeat is turned on.

### To turn the progress beeper on and off



Pressing (A) while the countdown start time is on the display or while a countdown timer operation is in progress in the Countdown Timer Mode toggles progress beeper operation on (♪ displayed) and off (♪ not displayed).

### To use the countdown timer

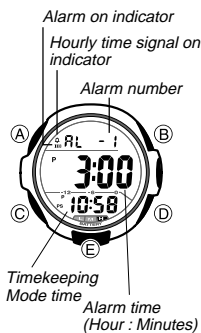


Press (E) while in the Countdown Timer Mode to start the countdown timer.

- When display of the minute and seconds indicators is turned on, the indicators show the remaining countdown time (minutes and seconds). The seconds and minute indicators are positioned at 12 o'clock when the current countdown time is 60 minutes.

- When the countdown reaches zero, the alarm sounds for five seconds or until you stop it by pressing any button.
- Press (E) while a countdown operation is in progress to pause it. Press (E) again to resume the countdown.
- The countdown timer operation continues even if you exit the Countdown Timer Mode.
- To completely stop a countdown operation, first pause it (by pressing (E)), and then press (A). This returns the countdown time to its starting value.
- Frequent use of auto-repeat and the alarm can run down battery power.

### 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 (AL - 1 through AL - 5) indicates an alarm screen. :00 is shown for the alarm time 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 (C).

### To set an alarm time



- In the Alarm Mode, use (D) to scroll through the alarm screens until the one whose time you want to set is displayed.



- Hold down (A) until the hour setting of the alarm time start to flash, which indicates the setting screen.
  - This automatically turns on the alarm.
- Press (C) to move the flashing between the hour and minute settings.
- While a setting is flashing, use (D) (+) and (B) (-) 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).
- Press (A) 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 (D) to sound the alarm.

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

- In the Alarm Mode, use (D) to select an alarm or the Hourly Time Signal.
- When the alarm or the Hourly Time Signal you want to set is selected, press (E) 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.

### Backlight

#### Auto light switch on indicator



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

- The auto light switch must be turned on (indicated by the auto light switch on indicator) for it to operate.
- You can specify 1.5 seconds or 2.5 seconds as the illumination duration.
- See "Backlight Precautions" for other important information about using the backlight.

### To turn on the backlight manually

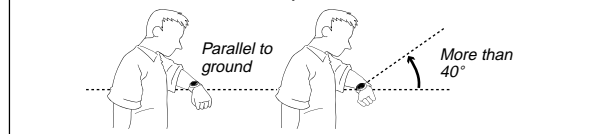
- Press (L) in any mode to illuminate the display.
- The above operation turns on the backlight regardless of the current auto light switch setting.
  - The backlight is disabled while you are performing a bearing sensor calibration operation in the Digital Compass Mode.

### About the Auto Light Switch

Turning on the auto light switch causes the backlight 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 turn on the backlight under bright light.

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

- 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 surprise or distract others around you.
- When you are wearing the watch, make sure that its auto light switch is turned off before riding on a bicycle or operating a motorcycle or any other motor vehicle. Sudden and unintended operation of the auto light switch can create a distraction, which can result in a traffic accident and serious personal injury.

### To turn the auto light switch on and off

In any mode except while a setting is flashing on the display, hold down **L** for about two seconds to toggle the auto light switch on (AUTO displayed) and off (AUTO not displayed).

- The auto light switch on indicator (AUTO) 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 3.
- The backlight may not light right away if you raise the watch to your face while a barometric pressure or altitude measurement operation is in progress.
- 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
  - While a direction measurement operation is being performed or while a bearing sensor calibration operation in the Digital Compass Mode

### To specify the illumination duration



- In the Timekeeping Mode, hold down **A** until the seconds start to flash, which indicates the setting screen.
- Press **B** to toggle the illumination duration setting between 2.5 seconds (2.5) and 1.5 seconds (1.5).
- After the setting is the way you want, press **A** to exit the setting screen.

## 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.

Altitude	Air Pressure	Temperature
4000 m	616 hPa	-11°C
3500 m	701 hPa	-4.5°C
3000 m		
2500 m	795 hPa	2°C
2000 m	899 hPa	8.5°C
1500 m		
1000 m	1013 hPa	15°C
0 m		

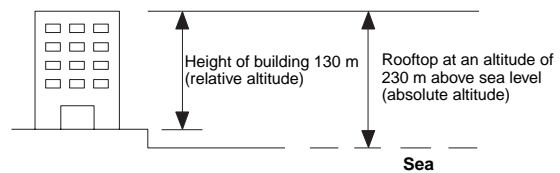
Notes: About 8 hPa per 100 m; About 9 hPa per 100 m; About 10 hPa per 100 m; About 11 hPa per 100 m; About 12 hPa per 100 m; About 6.5°C per 1000 m.

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			
8000 ft	25.84 inHg	About 0.192 inHg per 200 ft	44.7°F
6000 ft	29.92 inHg	About 0.21 inHg per 200 ft	59.0°F
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.



### 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.

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

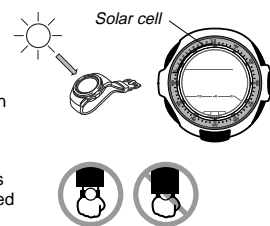
- To give altitude measurement priority, leave the watch on your wrist or in any other location where the temperature of the watch is kept constant.
- To give temperature measurement priority, remove the watch from your wrist and allow it to hang freely from your bag or in another location where it is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

## 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.
- Normally, you should try to keep the watch outside of your sleeve as much as possible. Charging is significantly reduced if the face is only partially covered.



### 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 normally 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 fully charge, 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 4 and when you have the battery replaced.
- Turn on the watch's Power Saving function and keep it in an area normally exposed to bright light when storing it for long periods. This helps to keep the rechargeable battery from going dead.

## Battery Power 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		All functions enabled.
2		All functions enabled.
3		Except for timekeeping and battery power indicator, all functions and display indicators are disabled.
4		All functions disabled.

- The flashing **CHARGE** 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 4, all functions are disabled, memory contents are cleared, and settings return to their initial factory defaults. Functions are enabled once again after the rechargeable battery is charged, but you need to set the time and date after the battery reaches Level 3 (indicated by the **L** indicator) from Level 4. You will not be able to set any of the other settings until the battery reaches Level 2 (indicated by the **M** indicator) after dropping to Level 4.
- Display indicators reappear as soon as the battery is charged from Level 4 to Level 3.
- Leaving the watch exposed to direct sunlight or some other very strong light source can cause the battery power indicator to temporarily show a reading that is higher than the actual battery level. The correct battery level should be indicated after a few minutes.



Recover indicator

- If you use the backlight or alarms a number of times during a short period, **RECOV.** appears on the display and the backlight, alarm, countdown timer alarm, hourly time signal, and sensor operations become disabled until battery power recovers. After some time, battery power will recover and **RECOV.** 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 **RECOV.** on the display. If battery power goes low while a measurement operation is in progress, the value produced by the last successful measurement operation remains on the display. Attempting to perform a sensor operation in the Digital Compass Mode will cause -- to appear on the display. In other sensor modes, the display will go blank. In the case of temperature, the last successfully measured value will appear on the display.
- If **RECOV.** 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 is not exposed to light
  - Internal timekeeping
  - Display on 18 hours per day, sleep state 6 hours per day
  - 1 backlight operation (1.5 seconds) per day
  - 10 seconds of alarm operation per day
  - 10 digital compass operations per week
  - 10 hours of altimeter measurements, once per month
- Stable operation is promoted by frequent charging.

## 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 4	Level 3	Level 2	Level 1
Outdoor Sunlight (50,000 lux)	2 hours	16 hours	5 hours	
Sunlight Through a Window (10,000 lux)	4 hours	81 hours	23 hours	
Daylight Through a Window on a Cloudy Day (5,000 lux)	7 hours	165 hours	45 hours	
Indoor Fluorescent Lighting (500 lux)	88 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

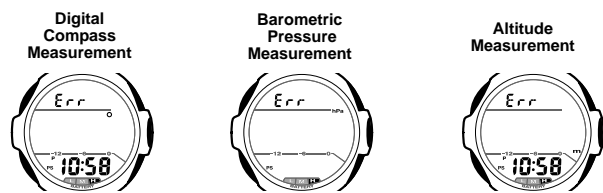
- The watch automatically returns to the Timekeeping Mode if you do not perform any button operation for two or three minutes in the Data Recall, Alarm, Digital Compass, or Barometer/Thermometer Mode.
- If you do not perform any button operation while in the Altimeter Mode, the watch automatically returns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

## 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 its sensor to malfunction or improper contact of internal circuitry. When this happens, **Err** (error) will appear on the display and sensor operations will be disabled.



- 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.

## Power Saving

When turned on, Power Saving automatically enters a sleep state 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 are actually two sleep state levels: "display sleep" and "function sleep".

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

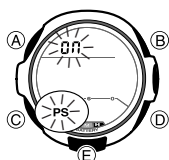
- Wearing the watch inside the sleeve of clothing can cause it to enter the sleep state.
- The watch will not enter the sleep state while the digital time is between 6:00 AM and 9:59 PM. If the watch is already in the sleep state when the digital time reaches 6:00 AM, however, it will remain in the sleep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

## To recover from the sleep state

Perform any one of the following operations.

- Move the watch to a well-lit area. It can take up to two seconds for the display to turn on.
- Press any button.
- Angle the watch towards your face for reading.

## To turn Power Saving on and off



1. In the Timekeeping Mode, hold down **(A)** until the seconds start to flash, which indicates the setting screen.
  2. Press **(C)** seven times until the Power Saving on/off screen appears.
  3. Press **(D)** to toggle Power Saving on (**PS**) and off (**PS**).
  4. Press **(A)** to exit the setting screen.
- The Power Saving on indicator (**PS**) is on the display in all modes while Power Saving is turned on.

## Backlight Precautions

- The electro-luminescent panel that provides illumination loses power after very long use.
- The illumination provided by the backlight may be hard to see when viewed under direct sunlight.
- The backlight automatically turns off 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 the backlight 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 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



- The backlight may not light if the face of the watch is more than 15 degrees above or below parallel. Make sure that the back of your hand is parallel to the ground.
- The backlight turns off after the preset illumination duration (see "To specify the illumination duration"), even if you keep the watch pointed towards your face.

- Static electricity or magnetic force can interfere with proper operation of the auto light switch. If the backlight does not light, try moving the watch back to the starting position (parallel with the ground) and then tilt it back 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, the backlight may not light until about one second after you turn the face of the watch towards you. This does not necessarily indicate malfunction of the auto light switch.
- 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.

## 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

Whenever you suspect that direction readings produced by the watch are wrong, you should calibrate it. You can use either one of two calibration procedures: *bidirectional calibration* or *northerly calibration*.

Use bidirectional calibration when you want to take readings within an area exposed to magnetic force. This type of calibration should be used if the watch 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). You could use this calibration procedure, for example, to set the watch to indicate true north instead of magnetic north.

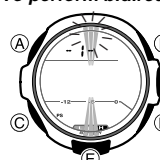
## Important!

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

## 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.

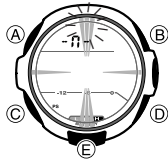
## To perform bidirectional calibration



1. Press **(B)** to enter the Digital Compass Mode.
2. Hold down **(A)** until **-|-** appears on the display, which indicates the setting screen.
  - At this time, the magnetic north pointer flashes at the 12 o'clock position to indicate that the watch is ready to calibrate the first direction.
3. Place the watch on a level surface facing any direction you want, and press **(B)** to calibrate the first direction.
  - **- - -** is shown on the display while calibration is being performed. **-|-** appears in the upper part of the display, and the magnetic north pointer flashes at the 6 o'clock position when calibration of the first direction is complete. This means that the watch is ready for calibration of the second direction.
4. Rotate the watch 180 degrees.
5. Press **(B)** again to calibrate the second direction.

- --- is shown on the display while calibration is being performed. When calibration is complete, the Digital Compass Mode screen (showing the angle value) appears.
- If --- appears and then changes to **ERR** (error) on the calibration screen, it means that there is something wrong with the sensor. **ERR** will disappear after about one second. Press (A) to return to the Digital Compass Mode screen, and then try performing the calibration operation again. If **ERR** keeps appearing, contact your original dealer or nearest authorized CASIO distributor to have the watch checked.

### To perform northerly calibration



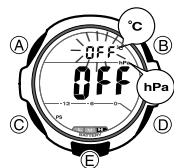
1. While in the Digital Compass Mode, hold down (A) until **-|-** appears on the display, which indicates the setting screen.
2. Press (C) to start the northerly calibration procedure.
  - At this time, **-|-** (north) appears on the display.

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 (B) to start the calibration operation.
  - --- is shown on the display while calibration is being performed. When calibration is complete, the Digital Compass Mode screen (with **0°** indicated as the angle value) appears.
  - If --- appears and then changes to **ERR** (error) on the calibration screen, it means that there is something wrong with the sensor. **ERR** will disappear after about one second. Press (A) to return to the Digital Compass Mode screen, and then try performing the calibration operation again. If **ERR** keeps appearing, contact your original dealer or nearest authorized CASIO distributor to have the watch checked.

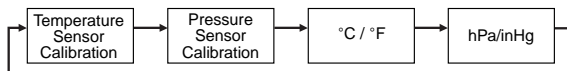
### Changing the Barometric Pressure and Temperature Units

Changing the barometric pressure units automatically restarts display of the barometric pressure indicators.

#### To change the barometric pressure and temperature units



1. Press (E) to enter the Barometer/Thermometer Mode.
2. Hold down (A) until **OFF** appears or until the display goes blank. This is the setting screen.
  - If the display goes blank, it means there is calibration value. Release (A). Wait for four or five seconds and the value will appear.
3. Press (C) to move the flashing in the sequence shown below.



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

### Calibrating the Temperature Sensor

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

#### Important!

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

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

#### To calibrate the temperature sensor



1. Press (E) to enter the Barometer/Thermometer Mode.
2. Hold down (A) until **OFF** appears or until the display goes blank. This is the setting screen.
  - If the display goes blank, it means there is calibration value. Release (A). Wait for four or five seconds and the value will appear.
3. Press (D) (+) or (B) (-) to change the displayed temperature by 0.1°C (or 0.2°F).
  - Pressing (B) and (D) at the same time returns to the factory calibration (**OFF**).
4. Press (A) to return to the Barometer/Thermometer Mode screen.

### Calibrating the Barometric Pressure Sensor

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

#### Important!

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

#### To calibrate the pressure sensor



1. Press (E) to enter the Barometer/Thermometer Mode.
2. Hold down (A) until **OFF** appears or until the display goes blank. This is the setting screen.
  - If the display goes blank, it means there is calibration value. Release (A). Wait for four or five seconds and the value will appear.
3. Press (C) to move the flashing to the barometric pressure calibration status in the center of the display.
  - At this time, **OFF** or the barometric pressure value should be flashing on the display.
4. Press (D) (+) or (B) (-) to change the displayed barometric pressure by 1 hPa (0.05 inHg).
  - Pressing (B) and (D) at the same time returns to the factory calibration (**OFF**).
5. Press (A) to return to the Barometer/Thermometer Mode screen.



#### To change the altitude unit

1. Press (D) to enter the Altimeter Mode.
2. Hold down (A) until **OFF** (flashing) appears or until the display goes blank. This is the setting screen.
  - If the display goes blank, it means there is a reference altitude value. Release (A) and wait for four or five seconds until the value appears.
3. Press (C) to move the flashing to the altitude unit setting.
4. Use (D) to select the unit you want (**m** or **ft**).
5. Press (A) to return to the Altimeter Mode screen.
  - Performing the above procedure causes altitude values stored in memory also to be converted to the unit you select.

