Operation Guide 2858 2859 2860 2861 CASIO

Getting Acquainted

Congratulations upon your selection of this CASIO watch. To get the most out of your purchase, be sure to carefully read this manual and keep it on hand for later reference when necessary.

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 "Battery" of this manual for important information you need to know when exposing the watch to bright light.**

If the display of the watch is blank...

Sleep indicator

Module 2858/2859

Module 2860/2861

If the sleep indicator (SLEEP) is displayed, it means the watch's Power Saving function has turned off the display 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 recovers 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 Function" for more information.**

About This Manual

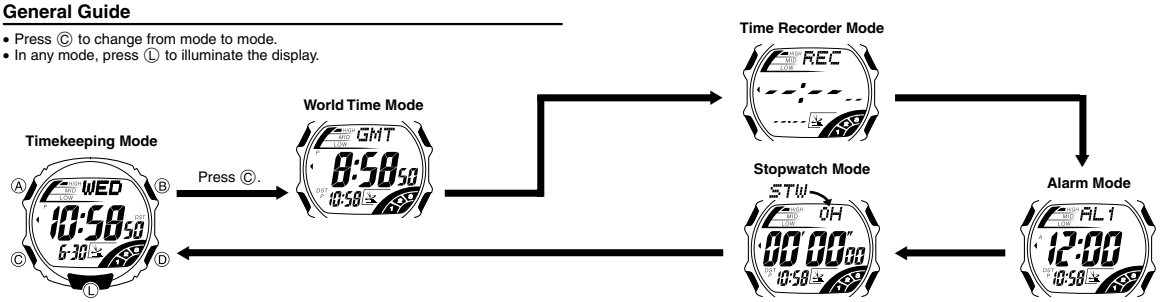
- The operational procedures for Modules 2858, 2859, 2860, and 2861 are identical. All of the illustrations in this manual show Module 2858/2859.
- Button operations are indicated using the letters shown in the illustration.
- Each section of this manual provides you with the information you need to perform operations in each mode. Further details and technical information can be found in the "Reference" section.

Module 2858/2859

Module 2860/2861

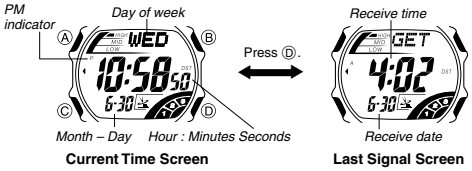
General Guide

- Press Ⓒ to change from mode to mode.
- In any mode, press Ⓛ to illuminate the display.



Radio-controlled Timekeeping

This watch receives a time calibration signal and updates its time setting accordingly. The time calibration signal includes both Standard Time and Daylight Saving Time (summer time) data.
- In the Timekeeping Mode, press Ⓓ to display the Last Signal screen. The Last Signal screen shows the date and time of the last successful time cailbration signal reception.



Current Time Screen **Last Signal Screen**

- This watch is designed to pick up the time calibration signal transmitted from Rugby, England and the signal from Mainflingen, Germany.

Current Time Setting

This watch automatically adjusts its time setting in accordance with a time calibration signal. You can also perform a manual procedure to set the time and date, when necessary.
- The first thing you should do after purchasing this watch is to set your Home City, which is the city where you will normally use the watch. For more information, see "To set your Home City" below.
- When using the watch that is outside of the range of the transmitters in Rugby and Mainflingen, you need to manually adjust the time as required. See "Timekeeping" for information about manual settings.

To set your Home City

City code

1. In the Timekeeping Mode, hold down Ⓐ until the city code setting starts to flash, which indicates the setting screen.
2. Use Ⓓ(east) and Ⓑ(west) to select the city code you want to use as your Home City.
   - The following are the city codes for major cities in the Western Europe time zones.
     LON: London
     PAR and BER: Paris, Berlin, Milan, Rome, Amsterdam, Hamburg, Frankfurt, Vienna, Barcelona, Madrid
3. Press Ⓒ to display the transmitter mode setting screen.
   - If the displayed transmitter mode indicator shows something other than AUTO, use Ⓓ to display AUTO before advancing to the next step.
4. Press Ⓐ twice to exit the setting screen.
- The first press of Ⓐ displays the 12/24-hour setting screen. Pressing Ⓐ again exits the setting screen.

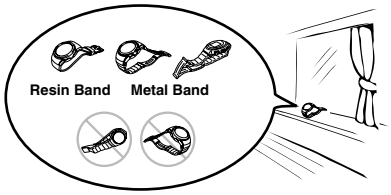
Important!
- Normally, your watch should show the correct time as soon as you select your Home City code. If it does not, it should adjust automatically after the next auto receive operation (in the middle of the night). You can also perform manual receive or you can set the time manually.
- If you are in an area that does not use Daylight Saving Time (summer time), turn off the DST setting.
- See "Transmitters" for details about the transmitter mode indicator.

Time Calibration Signal Reception

There are two different methods you can use to receive the time calibration signal: *auto receive* and *manual receive*.

- **Auto Receive**
  With auto receive, the watch automatically picks up the time calibration signal five times a day at 0:00 a.m., 1:00 a.m., 2:00 a.m., 3:00 a.m., and 4:00 a.m. For more information, see "About Auto Receive".
- **Manual Receive**
  Manual receive lets you start a time calibration receive operation with the press of a button. For more information, see "To perform manual receive".

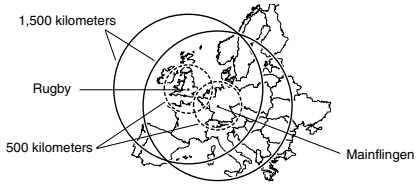
Important!
- Position the watch as shown in the nearby illustration, with its 12 o'clock side facing towards a window. Make sure there are no metal objects nearby.



- The watch should not be on its side or facing the wrong way.
- Proper signal reception can be difficult or even impossible under the conditions listed below.

Inside or among buildings | Inside a vehicle | Near household appliances or office equipment, or a mobile phone | Near a construction site, airport, or other sources of electrical noise | Near high-tension power lines | Among or behind mountains

- Signal reception is normally better at night than during the day.
- Time calibration signal reception takes from two to five minutes, but in some cases it can take as long as 12 minutes. Take care that you do not perform any button operations or move the watch during this time.



- This watch is designed to receive the time calibration signal transmitted from Rugby, England and the signal from Mainflingen, Germany. Signal reception is possible within the area represented by a circle with a radius of about 1,500 kilometers.
- At distances further than about 500 kilometers from a transmitter, signal reception may not be possible during certain times of year or times of day. Radio interference may also cause problems with reception.
- See the information under "Signal Receive Troubleshooting" if you experience problems with time calibration signal reception.

About Auto Receive

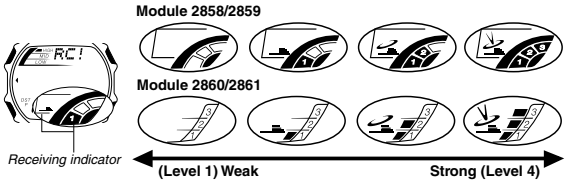
When auto receive is turned on, the watch automatically starts to receive the time calibration signal when the time in the Timekeeping Mode reaches 0:00 a.m., 1:00 a.m., 2:00 a.m., 3:00 a.m., and 4:00 a.m. each day (calibration times). The watch will also perform an additional auto receive operation at 5:00 a.m. if none of the regularly scheduled auto receive operations are successful.

Note

- Auto receive is on whenever the transmitter mode setting is anything other than OFF. See "Transmitters" for more information.
- The auto receive operation is performed only if the watch is in the Timekeeping Mode or World Time Mode when one of the calibration times is reached. It is not performed if a calibration time is reached while an alarm is sounding, or while you are configuring settings (while settings are flashing on the display).
- Auto receipt of the calibration signal is designed to be performed early in the morning, while you sleep (provided that the Timekeeping Mode time is set correctly). Before going to bed for the night, remove the watch from your wrist, and put it in a location where it can easily receive the signal.
- When auto receive is turned on, the watch receives the calibration signal for two to five minutes everyday when the time in the Timekeeping Mode reaches each of the calibration times. Do not perform any button operation within five minutes before or after any one of the calibration times. Doing so can interfere with correct calibration.
- Remember that reception of the calibration signal depends on the time kept in the digital display. The receive operation will be performed whenever the display shows any one of the calibration times, regardless of whether or not the displayed time is actually the correct time.
- When two, three, four, or five receptions are successful, the watch uses the data of the last reception for calibration. When only one reception is successful, the watch uses the data of the successful reception.

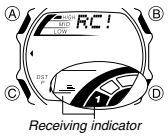
About the Receiving Indicator

The receiving indicator shows the strength of the calibration signal being received. For best reception, be sure to keep the watch in a location where signal strength is strongest.



- Even in an area where signal strength is strong, it takes about 10 seconds for signal reception to stabilize enough for the receiving indicator to indicate signal strength.
- Use the receiving indicator as a guide for checking signal strength and for finding the best location for the watch during signal receive operations.
- The Level 4 receiving indicator remains on the display in all modes following reception of the time calibration signal and calibration of the watch's time setting. The Level 4 receiving indicator is not displayed if signal reception was unsuccessful or after manual adjustment of the current time setting.
- The Level 4 receiving indicator is displayed only when the watch is able to successfully receive both time and date data. It does not appear when only time data is received.
- The Level 4 receiving indicator indicates that at least one of the calibration signal receive operations was successful. Note, however, that the Level 4 receiving indicator is cleared from the display at 3:00 a.m. each day.

To perform manual receive



1. Place the watch on a stable surface so its top (12 o'clock side) is facing towards a window.
   - Note that signal reception is poor when the 12 o'clock side of the watch is not facing towards a window.
2. In the Timekeeping Mode (Current Time screen), hold down Ⓓ for about two seconds until the watch beeps.
3. Release Ⓓ and the message RC! appears to indicate that signal reception has started.

- Time calibration signal reception takes from two to five minutes. Take care that you do not perform any button operations or move the watch during this time.
- After signal reception is complete, the display of the watch changes to the Last Signal screen.

Note

- To interrupt a receive operation and return to the Timekeeping Mode, press Ⓓ.
- If the receive operation is unsuccessful, the message ERR appears on the display for about one or two minutes. After that, the watch returns to the Timekeeping Mode.
- You can also change from the Last Signal or ERR screen to the normal timekeeping screen by pressing Ⓓ.

Signal Receive Troubleshooting

Check the following points whenever you experience problems with calibration signal reception.

Problem	Probable Cause	What you should do
Cannot perform manual receive.	• The watch is not in the Timekeeping Mode. • Your current Home City is not one of the following city codes: LON, PAR, or BER. • The transmitter mode is incorrect.	• Enter the Timekeeping Mode and try again. • Select LON, PAR, or BER as your Home City. • Select the transmitter mode appropriate for your current location.
Auto receive is turned on, but the Level 4 receiving indicator does not appear on the display.	• The transmitter mode is incorrect. • You changed the time setting manually. • The watch was not in the Timekeeping or World Time Mode, or you performed some button operation during the auto receive operation. • Even if receive is successful, the Level 4 receiving indicator disappears every day at 3 am. • Time data (hour, minutes, seconds) only was received during the last receive operation. The Level 4 receiving indicator appears only when time data and date data (year, month, day) are both received.	• Select the transmitter mode appropriate for your current location. • Perform manual signal receive or wait until the next auto signal receive operation is performed. • Check to make sure the watch is in a location where it can receive the signal.
Time setting is incorrect following signal reception.	• If the time is one hour off, the DST setting may be incorrect. • The Home City code setting is not correct for the area where you are using the watch.	• Change the DST setting to Auto DST. • Select the correct Home City code.

- For further information, see "Important!" under "Time Calibration Signal Reception" and "Radio-controlled Timekeeping Precautions".

World Time

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

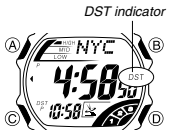
- For full information on city codes, see the "City Code Table".
- The current time for all city codes in the World Time Mode is calculated in accordance with the Greenwich Mean Time (GMT) differential for each city, based on the your Home City time setting.
- All of the operations in this section are performed in the World Time Mode, which you enter by pressing Ⓒ.

To view the time in another city code

While in the World Time Mode, press Ⓓ to scroll through the city codes (time zones) to the east or Ⓑ to scroll to the west.

- If the current time shown for a city is wrong, check your Timekeeping Mode time and Home City settings and make the necessary changes.

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



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

- The DST indicator is on the display whenever you display a city code for which Daylight Saving Time is turned on.
- Note that the DST/Standard Time setting affects only the currently displayed city code. Other city codes are not affected.
- Daylight Saving Time (DST) advances the time setting by one hour from Standard Time. Remember that the not all countries or even local areas use Daylight Saving Time.
- The watch will perform a signal receive operation even if it is in the World Time Mode when a calibration time is reached. If this happens, the World Time Mode time settings will be adjusted in accordance with the Home City time.

Time Recorder

The Time Recorder lets you store up to 30 records of the current time (month, day, hour, minutes, seconds, and DST on/off setting) with the touch of a button. One way you can use the Time Recorder is to record the start time and the end time of a particular event.

To record a Time Recorder time

1. Enter the Timekeeping Mode.
2. Hold down Ⓑ for about one second to record the Home City time (month, day, hour, minutes, seconds, and DST on/off setting).

- The recorded time flashes for about two seconds, and then it is assigned a record number. After that, the Timekeeping Mode screen appears.
- Records are assigned numbers sequentially from #01 through #30.
- Storing a new time record when there are already 30 records stored in memory automatically deletes record #01, shifts the remaining records upwards by 1, and stores the new record as #30.

To recall Time Recorder times

1. Enter the Time Recorder Mode.
   - If you recorded a new Time Recorder time since you last entered the Time Recorder Mode, the newest record appears first. If you have not recorded a new time, the record you were viewing when you last exited the Time Recorder Mode appears first.
2. Use Ⓑ (+) and Ⓓ (–) to scroll through times stored in memory.

To delete all Time Recorder times

1. Enter the Time Recorder Mode.
2. Hold down Ⓐ for about two seconds to delete all Time Recorder times.

- The recorded date and recorded time are replaced by dashes (-) when there are no Time Recorder times currently in memory.

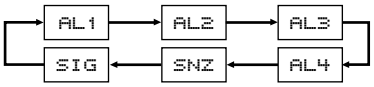
Alarms

The Alarm Mode gives you a choice of four one-time alarms and one snooze alarm.
Also use the Alarm Mode to turn the Hourly Time Signal (SIG) on and off.

- There are five alarms numbered AL 1 through AL4, and SNZ. You can configure SNZ as a snooze alarm only. Alarms AL 1 through AL4 can be used as one-time alarms only.
- Alarm settings (and Hourly Time Signal settings) are available in the Alarm Mode, which you enter by pressing Ⓒ.

To set an alarm time

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



2. After you select an alarm, hold down Ⓐ until the hour setting of the alarm time starts to flash, which indicates the setting screen.
   - This operation automatically turns on the alarm.
3. Use Ⓒ to move the flashing between the hour and minute settings.
4. While a setting is flashing, use Ⓓ (+) and Ⓑ (–) to change it.
5. Press Ⓐ to exit the setting screen.

- When setting the alarm time using the 12-hour format, take care to set the time correctly as a.m. (**A** indicator) or p.m. (**P** indicator).

Alarm Operation

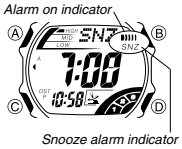
The alarm tone sounds at the preset time for 10 seconds, regardless of the mode the watch is in. In the case of the snooze alarm, the alarm operation is performed a total of seven times, every five minutes, or until you turn the alarm off.

- Pressing any button stops the alarm tone operation.
- Performing any one of the following operations during a 5-minute interval between snooze alarms cancels the current snooze alarm operation.
  Displaying the Timekeeping Mode setting screen
  Displaying the SNZ setting screen

To test the alarm

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

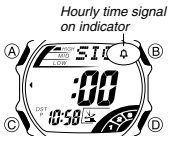
To turn an alarm on and off



1. In the Alarm Mode, use Ⓓ to select an alarm.
2. Press Ⓑ to toggle it on and off.

- Turning on a one-time alarm (AL 1 , AL2, AL3, AL4) displays the alarm on indicator on its Alarm Mode screen. Turning on the snooze alarm (SNZ) displays the alarm on indicator and snooze alarm indicator on its Alarm Mode screen.
- In all modes, the alarm on indicator is shown for any alarm that is currently turned on. When the snooze alarm is on, the snooze alarm indicator is displayed in all modes.
- The alarm on indicator flashes while the alarm is sounding.
- The snooze alarm indicator flashes during the 5-minute intervals between alarms.

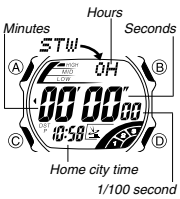
To turn the Hourly Time Signal on and off



1. In the Alarm Mode, use Ⓓ to select the Hourly Time Signal (SIG).
2. Press Ⓑ to toggle it on (Hourly Time Signal on indicator displayed) and off (Hourly Time Signal on indicator not displayed).

- The Hourly Time Signal on indicator is displayed in all modes when the Hourly Time Signal is turned on.

Stopwatch



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

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

To measure times with the stopwatch

Elapsed Time

Ⓓ Start → Ⓓ Stop → Ⓓ Re-start → Ⓓ Stop → Ⓑ Clear

Split Time

Ⓓ Start → Ⓑ Split (**SPL** displayed) → Ⓑ Split release → Ⓓ Stop → Ⓑ Clear

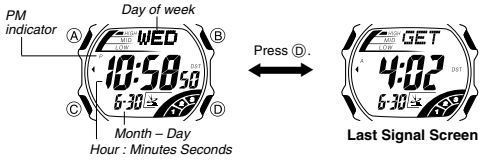
Two Finishes

Ⓓ Start → Ⓑ Split (First runner finishes. Display time of first runner.) → Ⓓ Stop (Second runner finishes.) → Ⓑ Split release (Display time of second runner.) → Ⓑ Clear

Timekeeping

Use the Timekeeping Mode to set and view the current time and date. This section also explains how to manually set the current date and time.

- All of the operations in this section are performed in the Timekeeping Mode, which you can enter by pressing Ⓒ.
- In the Timekeeping Mode, press Ⓓ to display the Last Signal screen.



Current Time Screen **Last Signal Screen**

Setting the Time and Date Manually

Make sure you select your Home City code before you change the current time and date settings. World Time Mode times are all displayed in accordance with the Timekeeping Mode settings. Because of this, World Time Mode times will not be correct if you do not select the proper Home City code before setting the time and date in the Timekeeping Mode.

- When setting the time and date, you can also configure settings for the transmitter, your Home City code (the code for the city where you normally use the watch), summer time (Daylight Saving time or DST), the 12/24-hour format, and power saving on/off.

To set the time and date manually

1. In the Timekeeping Mode, hold down Ⓐ until the city code setting starts to flash, which indicates the setting screen.
2. Use Ⓐ or Ⓒ to move the flashing in the sequence shown below to select other settings.

City/Transmitter Settings

Press Ⓒ. → City Code → Ⓒ → Transmitter Mode → DST

Press Ⓐ. ↓

Time/Date Settings

12/24-Hour Format → Ⓒ → Seconds → Hour → Minutes → Year → Month → Day → Power Saving

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

City/Transmitter Settings

Screen:	To do this:	Do this:
BER	Change the city code	Use Ⓓ (east) and Ⓑ (west).
AUTO	Change the transmitter mode (AUTO, DCF, MSF, or OFF)	Press Ⓓ.
DST AUTO	Toggle between Daylight Saving Time (On) , Standard Time (OFF), or Auto DST (AUTO)	Press Ⓓ.

- See "City Code Table" for a complete list of available city codes.
- The transmitter mode setting is always OFF and cannot be changed whenever the city code setting is anything other than LON, PAR, BER, or ATH.

Time/Date Settings

Screen:	To do this:	Do this:
12H	Toggle between 12-hour (12H) and 24-hour (24H) timekeeping	Press Ⓓ.
P 10:58 50	Reset the seconds to 00	Press Ⓓ.
	Change the hour or minutes	Use Ⓓ (+) and Ⓑ (–).
'04 6-30	Change the year, month, or day	Use Ⓓ (+) and Ⓑ (–).
PS On	Toggle power saving on (On) and off (OFF)	Press Ⓓ.

4. Use Ⓐ to exit the setting screen.

- If a City/Transmitter Setting screen is displayed, press Ⓐ twice.
- If a Time/Date Setting screen is displayed, press Ⓐ once.

Note

- The "Transmitter Mode" setting specifies the time calibration signal transmitter mode, or turns auto receive off. See "Transmitters" for more information.
- Auto DST (AUTO) can be selected only while LON, PAR, BER, or ATH is selected as the Home City code. For more information, see "Daylight Saving Time (DST)" below.

Daylight Saving Time (DST)

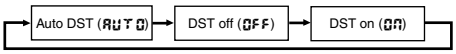
Daylight Saving Time (summer time) advances the time setting by one hour from Standard Time. Remember that not all countries or even local areas use Daylight Saving Time.

The time calibration signals transmitted from Rugby and Mainflingen include both Standard Time and DST data. When the Auto DST setting is turned on, the watch switches between Standard Time and DST (summer time) automatically in accordance with the received time signal.

- The default DST setting is Auto DST (AUTO) whenever you select LON, PAR, BER, or ATH as your Home City code.
- If you experience problems receiving the time calibration signal in your area, it is probably best to switch between Standard Time and Daylight Saving Time (summer time) manually.

To change the Daylight Saving Time (summer time) setting

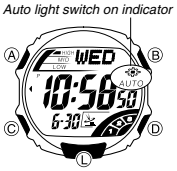
1. In the Timekeeping Mode, hold down Ⓐ until the city code setting starts to flash, which indicates the setting screen.
2. Press Ⓒ twice and the DST setting screen appears.
3. Use Ⓓ to cycle through the DST settings in the sequence shown below.



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

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 in the dark.

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

To turn on the backlight manually

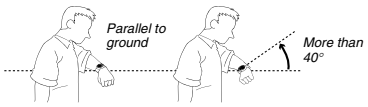
In any mode, press Ⓛ to illuminate the display for about one second.

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

About the Auto Light Switch

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



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, hold down Ⓛ for about two seconds to toggle the auto light switch on (auto light switch on indicator displayed) or off (auto light switch on indicator not displayed).

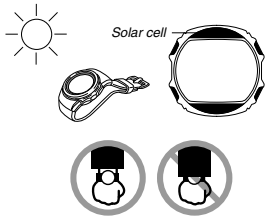
- The auto light switch on indicator is on the display in all modes while the auto light switch is turned on.

Battery

This watch is equipped with a solar cell and a 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 employs a solar cell that converts light into electricity, which charges a built-in rechargeable battery. Normally, the rechargeable battery should not need replacement, but after very long use over a number of years, the rechargeable battery may lose its ability to achieve a full charge. If you experience problems getting the rechargeable battery to a full charge, contact your dealer or CASIO distributor about having the rechargeable battery replaced.
- The rechargeable battery should be replaced with a CASIO-specified CTL1616 battery only. Other rechargeable batteries can cause damage to 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

Recover indicator

Level	Battery Power Indicator	Function Status
1	Module 2858/2859 2860/2861	All functions enabled.
2		All functions enabled.
3	*(Charge Soon Alert)*	Beeper tone, backlight, calibration signal reception, display, and buttons are disabled.
4		All functions, including timekeeping, are 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 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 from Level 4. You will not be able to configure any of the other settings until the battery reaches Level 2 after dropping to Level 4.
- Display indicators reappear as soon as the battery is charged from Level 4 to Level 3.
- Leaving the watch in 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 power indicator should appear after a few minutes.
- If you use the backlight or the alarms a number of times during a short period, the recover indicator (RECOVER) appears on the display and the following operations become disabled until battery power recovers.
  - *Backlight*
  - *Beeper tone*
  - *Calibration reception*

  After some time, battery power will recover and the recover indicator (RECOVER) will disappear, indicating that the above functions are enabled again.
- If the recover indicator 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
  - 5 times calibration reception per day
- 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)	1 hour		14 hours	3 hours
Sunlight Through a Window (10,000 lux)	3 hours		70 hours	14 hours
Daylight Through a Window on a Cloudy Day (5,000 lux)	5 hours		143 hours	28 hours
Indoor Fluorescent Lighting (500 lux)	57 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

- If you leave the watch in the Time Recorder Mode or Alarm Mode for two or three minutes without performing any operation, it automatically changes to the Timekeeping Mode.
- If you leave a screen with flashing digits on the display for two or three minutes without performing any operation, the watch automatically exits the setting screen.

Scrolling

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

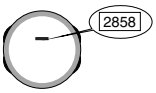
Initial Screens

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

Radio-controlled Timekeeping Precautions

- Strong electrostatic charge can result in the wrong time being set.
- Even when the watch is within the reception range of the transmitter, signal reception is impossible if the signal is blocked by mountains or other geological formations between the watch and signal source.
- Signal reception is affected by weather, atmospheric conditions, and seasonal changes.
- The time calibration signal is bounced off the ionosphere. Because of this, such factors as changes in the reflectivity of the ionosphere, as well as movement of the ionosphere to higher altitudes due to seasonal atmospheric changes or the time of day may change the reception range of the signal and make reception temporarily impossible.
- Even if the time calibration signal is received properly, certain conditions can cause the time setting to be off by up to one second.
- The current time setting in accordance with the time calibration signal takes priority over any time settings you make.
- The watch is designed to automatically update the date and day of the week for the period January 1, 2000 to December 31, 2099. Setting of the date by the time calibration signal cannot be performed starting from January 1, 2100.
- This watch can receive signals that differentiate between leap years and non-leap years.
- Though this watch is designed to receive both time data (hour, minutes, seconds) and date data (year, month, day), certain signal conditions can limit reception to time data only.
- Normally, the signal reception date shown by the Last Signal screen is the date data included in the received time calibration signal. When only time data is received, however, the Last Signal screen shows date as kept in the Timekeeping Mode at the time of signal reception.
- If you are in an area where proper time calibration signal reception is impossible, the watch keeps time within ±15 seconds a month at normal temperature.
- If you have problems with proper time calibration signal reception or if the time setting is wrong after signal reception, check your transmitter, current city code, and DST (summer time) settings. The following are the initial factory defaults for these settings.

Setting	Initial Factory Default
Transmitter	AUTO
City code	BER (Berlin) (Module 2858 and 2860) LON (London) (Module 2859 and 2861)
DST (summer time)	DST (Auto switching) AUTO



- To find out the module number of your watch, look at its back cover. The Module number (2858, 2859, 2860, or 2861) will be engraved inside the box on the back cover.

Transmitters
This watch is designed to receive the time calibration signal transmitted from Rugby, England and the signal from Mainflingen, Germany. You can select either one of the transmitters, or you can configure the watch to automatically select the transmitter that has the strongest signal.

- The following explains how the watch determines which transmitter it should check first while the watch is configured for auto transmitter search.

Module 2858 and 2860

In this case:	The watch does this:
The first signal auto search operation after factory default settings are in effect, or after the city code has been changed.	1. Checks the Mainflingen signal first. 2. If the Mainflingen signal cannot be received, checks the Rugby signal.
Any case other than the above.	1. Checks the last successfully received signal first. 2. If the last successfully received signal cannot be received, checks the other signal.

Module 2859 and 2861

In this case:	The watch does this:
The first signal auto search operation after factory default settings are in effect, or after the city code has been changed.	1. Checks the Rugby signal first. 2. If the Rugby signal cannot be received, checks the Mainflingen signal.
Any case other than the above.	1. Checks the last successfully received signal first. 2. If the last successfully received signal cannot be received, checks the other signal.

- Time calibration auto receive is turned on whenever the transmitter mode is AUTO, DCF or MSF. Auto receive is off whenever the transmitter mode setting is OFF.
- See "To select the transmitter mode" below.
- Since the watch checks signals from both transmitters when AUTO is selected as the transmitter mode, the signal receive operation can take as long as 12 minutes.

To select the transmitter mode

1. In the Timekeeping Mode, hold down Ⓐ until the city code setting starts to flash, which indicates the setting screen.
2. Press Ⓒ to display the transmitter mode setting screen.
3. Use Ⓓ to scroll through available transmitter modes until the one you want to select is displayed.

To do this:	Select this transmitter mode:
Automatically select the Rugby or Mainflingen signal	AUTO
Receive the Mainflingen signal	DCF
Receive the Rugby signal	MSF
Turn off auto receive	OFF

- Note that OFF appears in place of the transmitter mode indicator when any city code besides LON, PAR, BER, or ATH is selected as the Home City code. This indicates that you cannot specify a transmitter.

4. Press Ⓐ twice to exit the setting screen.

Timekeeping

- Resetting the seconds to 00 while the current count is in the range of 30 to 59 causes the minutes to be increased by 1. In the range of 00 to 29, the seconds are reset to 00 without changing the minutes.
- The day of the week is automatically displayed in accordance with the date (year, month, and day) settings.
- The year can be set in the range of 2000 to 2099.
- 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 battery replaced or when battery power drops to Level 4.
- The current time for all city codes in the Timekeeping Mode and World Time Mode is calculated in accordance with the Greenwich Mean Time (GMT) differential for each city, based on your Home City time setting.
- GMT differential is calculated by this watch based on Universal Time Coordinated (UTC*) data.

** The letters "UTC" stands for "Universal Time Coordinated", which is the world-wide scientific standard of timekeeping. It is based upon carefully maintained atomic (cesium) clocks that keep time accurately to within microseconds. Leap seconds are added or subtracted as necessary to keep UTC in sync with the Earth's rotation. The reference point for UTC is Greenwich, England.*

12-hour/24-hour Timekeeping Formats
The 12-hour/24-hour timekeeping format you select in the Timekeeping Mode is also applied in all other modes.

- 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 the **A** (AM) 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.

Power Saving Function

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

Elapsed Time in Dark	Display	Operation
60 to 70 minutes	Blank, with Sleep indicator (SLEEP◖) flashing	All functions enabled, except for the display
6 or 7 days	Blank, with Sleep indicator (SLEEP◖) not flashing	Beeper tone, backlight, display, and auto receipt of the calibration signal are disabled.

- 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 Timekeeping Mode time is between 6:00 AM and 9:59 PM. If the watch is already in the sleep state when the 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 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

Power saving on indicator

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

- The Power Saving on indicator (SAVE◖) is on the display in all modes while the 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 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.
- The backlight automatically turns off whenever an alarm sounds.
- Frequent use of the backlight shortens the battery operating time.

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

City Code Table

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

- Based on data as of June 2003.