Operation Guide 2532

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...

If the **SLEEP** indicator is on the display, it means that the display is blank because the watch's Power Saving function has turned off the display to conserve power. Power Saving automatically turns off the display and puts the watch into a sleep state whenever your 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 five seconds for the display to turn on.
- **See "Power Saving Function" for more information.**

General Guide

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

Timekeeping Mode

Press Ⓒ.

Moon / Tide Data Mode

Coutdown Timer Mode

Dual Time Mode

Stopwatch Mode

Alarm Mode

Timekeeping

Moon phase indicator
Tide graph
PM indicator
Day of week
Month – Day
Hour : Minutes Seconds
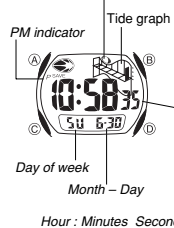
Use the Timekeeping Mode to set and view the current time and date.
- The tide graph shows tidal movements for the current date in accordance with the current time as kept in the Timekeeping Mode.
- The Moon phase indicator shows the current Moon phase in accordance with the current date as kept in the Timekeeping Mode.

Important!
- Moon phase, tide graph data, and Moon/Tide Data Mode data will not be displayed properly unless the Timekeeping Mode current date and time settings and Home Site data are configured correctly. See "Home Site Data" for more information.

To set the time and date

Year

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

Seconds → Hour → Minutes → 12/24-Hour Format
Power Saving ← Day ← Month ← Year
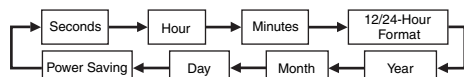
3. When the setting you want to change is flashing, use Ⓓ and Ⓑ to change it as described below.

To change this setting	Perform this button operation
Seconds	Press Ⓓ to reset to `00`.
Hour, Minutes, Year, Month, Day	Use Ⓓ (+) and Ⓑ (−) to change the setting.
12/24-Hour Format	Press Ⓓ to toggle between 12-hour (`12H`) and 24-hour (`24H`) timekeeping.
Power Saving	Press Ⓓ to toggle Power Saving on (`On`) and off (`OFF`).

4. Press Ⓐ twice to exit the setting screen.
- The first press of Ⓐ displays the GMT differential setting screen. Pressing Ⓐ again exits the setting screen.
- See "Power Saving Function" for details about configuring Power Saving settings.
- The 12-hour/24-hour timekeeping format you select in the Timekeeping Mode is applied in all modes.
- The day of the week is automatically displayed in accordance with the date (year, month, and day) settings.

Home Site Data

Moon phase, tide graph data, and Moon/Tide Data Mode data will not be displayed properly unless Home Site data (GMT differential, longitude, and lunitidal interval) is configured correctly.
- The GMT differential is the time difference of the time zone where the site is located from Greenwich Mean Time.

Warning!
- The longitude, lunitidal interval, Moon phase indicator, and tide graph data that appear on the display of this watch are not intended for navigation purposes. Always use proper instruments and resources to obtain data for navigation purposes.
- This watch is not an instrument for calculating low tide and high tide times. The tide graph of this watch is intended to provide a reasonable approximation of tidal movements only.
- 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.
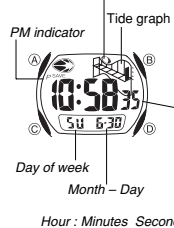

About This Manual

(Light)

- 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.

- Note that you must add one hour to the GMT differential for your time zone whenever you change to Daylight Saving Time. Subtract one hour when you change back to Standard Time.
- The lunitidal interval is the time elapsing between the Moon's transit over a meridian and the next high tide at that meridian. See "Lunitidal Interval" for more information.
- This watch displays lunitidal intervals in terms of hours and minutes.
- The "Site Data List" and "Lunitidal Interval List" provide GMT differential, longitude, and lunitidal interval information around the world.
- The following is the initial factory default Home Site data (Tokyo, Japan) when you first purchase the watch, whenever battery power drops to Level 5, and whenever you have the battery replaced. Change these settings to match the area where you anormally use the watch.
  GMT differential (+9.0); Longitude (East 140 degrees); Lunitidal interval (5 hours, 20 minutes)

To configure Home Site data

GMT differential

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

GMT differential → Longitude → Lunitidal Interval Hours → Lunitidal Interval Minutes

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

Setting	Screen	Button Operations
GMT differential	`+9.0`	Use Ⓓ (+) and Ⓑ (−) to change the setting. • You can specify a value in the range of −11.0 to +14.0, in 0.5-hour unit.
Longitude	`140° E`	Use Ⓓ (+) and Ⓑ (−) to change the setting. • You can specify a value in the range of 179°W to 180°E, in 1-degree units.
Lunitidal Interval Hours, Minutes	`5:20`	Use Ⓓ (+) and Ⓑ (−) to change the setting.

5. Press Ⓐ to exit the setting screen.

Moon/Tide Data
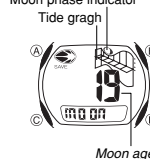
Moon phase indicator
Tide gragh
Moon age

Moon/tide data lets you view the Moon age and Moon phase for a particular date, and tidal movements for a particular date and time for the Home Site.
- If you suspect that the Moon/tide data is not correct for some reason, check the Timekeeping Mode data (current time, date, and Home Site settings), and make changes as required.
- See "Moon Phase Indicator" for information about the Moon phase indicator and "Tide Graph" for information about the tide graph.
- All of the operations in this section are performed in the Moon/Tide Data Mode, which you enter by pressing Ⓒ.

Moon/Tide Data Screens
Each press of Ⓐ in the Moon/Tide Data Mode toggles between the Moon Data screen and the Tide Data screen.

Moon Data Screen
Moon age   Moon phase indicator

Press Ⓐ.

Tide Data Screen
Time   Tide gragh

ᴹᵒ ᵒⁿ   Year Month – Day

Ƭ ᵗᵈᴱ
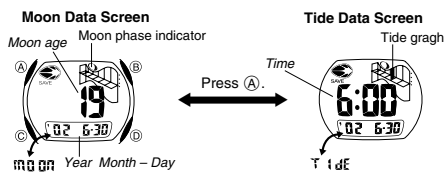
- When you enter the Moon/Tide Data Mode, the data that appears first is the Moon data (Moon age and Moon phase indicator) for the current date as kept by the Timekeeping Mode.

To view the Moon data for a particular date
While the Moon Data screen is displayed in the Moon/Tide Data Mode, use Ⓓ (+) and Ⓑ (–) to display the date whose Moon data you want to view.
- You can select any date from 2000 to 2039.

To view tide data for a particular time
1. While the Moon Data screen is displayed in the Moon/Tide Data Mode, use Ⓓ (+) and Ⓑ (–) to display the date whose tide data you want to view.
2. Press Ⓐ to switch to the Tide Data screen.
   - The initial screen shows the tide graph for 6:00 AM.
3. Specify the time for which you want to display tide data.
- Use Ⓓ (+) and Ⓑ (–) to change the time in one-hour steps.

Countdown Timer

Minutes   Seconds

Timekeeping Mode time
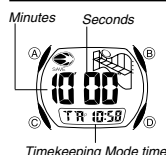
The countdown timer can be set within a range of one minute to 60 minutes. An alarm sounds when the countdown reaches zero. The countdown timer has two modes: auto-repeat and elapsed time, and a progress beeper signals the progress of the countdown. All of this makes the countdown timer a valuable tool for timing the start of a yacht race.
- All of the operations in this section are performed in the Countdown Timer Mode, which you enter by pressing Ⓒ.

Configuring the Countdown Timer
The following are the settings you should configure before actually using the countdown timer.
Countdown start time and reset time
Timer mode (auto-repeat, elapsed time)
Progress beeper on/off
- See "To configure the countdown timer" for information about setting up the timer.

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

Timer Mode
The countdown timer gives you a choice of two modes: auto-repeat and elapsed time.

Auto-repeat
Auto-repeat mode automatically restarts the countdown from the countdown start time you set whenever zero is reached.
- Auto-repeat mode is best when timing the starts of match races.
- Even if you start a countdown operation from the reset time, the countdown automatically restarts from the countdown start time whenever it reaches zero.
- Auto repeat timing repeats up to seven times.

Elapsed Time
When the end of the countdown is reached in the elapsed time mode, the timer automatically switches to an elapsed time measurement operation.
- The elapsed time mode is best when timing the speed of yachts during ocean races.
- The elapsed time operation is performed in one-second increments up to 99 hours, 59 minutes, 59 seconds.

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

Countdown End Beeper
The watch beeps each second of the final 10 seconds before a countdown reaches zero, and at zero. The first five beeps (seconds 10 through 6) are higher pitched than the final five beeps (seconds 5 through 1). The watch emits a longer beep to signal when the countdown reaches zero.
- The countdown end beeper always sounds, regardless of the on/off status of the progress beeper.

Progress Beeper
The progress beeper actually includes two beepers: a reset time beeper and a reset period progress beeper.
- The reset time beeper and reset period progress beeper sound only while the progress beeper is turned on.

Reset Time Beeper
The reset time beeper is similar to the countdown end beeper. When the progress beeper is turned on, the watch beeps each second of the final 10 seconds before the countdown reaches the reset time.

Reset Period Progress Beeper
The reset period is the portion of the countdown between the reset time and zero. When the progress beeper is turned on, the watch emits fours short beeps at the top of each minute during the reset period, and 30 seconds before the end of the countdown.

Countdown Timer Examples
Countdown start time: 10 minutes; Reset time: 5 minutes; Timer mode: Auto-repeat; Progress beeper: On

Reset Period

Start Time   Reset Time   *Reset Period Progress Beeper*   Countdown End Beeper

10'00"   5'00"   4'00"   3'00"   2'00"   1'00" 0'30" 0'00"

Reset Time Beeper

Countdown start time: 10 minutes; Reset time: 5 minutes; Timer mode: Elapsed time; Progress beeper: Off

Elapsed time measurement

Start Time   Reset Time

10'00"   5'00"   Countdown End Beeper   0'00"

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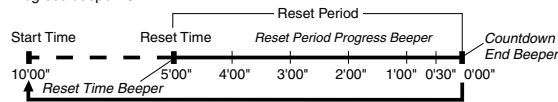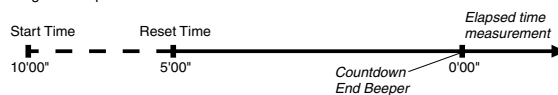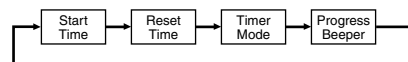
Start Time → Reset Time → Timer Mode → Progress Beeper

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

Setting	Screen	Button Operations
Start Time		Use Ⓓ (+) and Ⓑ (–) to change the setting. • You can set a start time in the range of 1 to 60 minutes in 1-minute increments.
Reset Time		Use Ⓓ (+) and Ⓑ (–) to change the setting. • You can set a reset time in the range of 1 to 5 minutes in 1-minute increments.
Timer Mode		Press Ⓓ to toggle between the auto-repeat mode (**On**) and the elapsed time mode (**OFF**). • An auto-repeat indicator (↻) appears when the auto-repeat mode is selected.
Progress Beeper		Press Ⓓ to toggle progress beeper on (**On**) and off (**OFF**). • A progress beeper indicator (♪) appears when this setting it turned on.

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

To use the countdown timer

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

To do this:	Do this:
Stop the countdown operation	Press Ⓓ.
Resume a stopped countdown operation	Press Ⓓ again.
Display the countdown start time	While the countdown is stopped, press Ⓑ.
Stop the countdown operation and display the reset time	Press Ⓑ.
Start the countdown from the displayed reset time	Press Ⓓ.

- The table below describes button operations you can perform during an elapsed time measurement operation in the elapsed time mode.

To do this:	Do this:
Stop the elapsed time operation	Press Ⓓ.
Resume a stopped elapsed time operation	Press Ⓓ again.
Display the countdown start time	While the elapsed time is stopped, press Ⓑ.
Stop the elapsed time operation and display the reset time	Press Ⓑ.
Start the countdown from the displayed reset time	Press Ⓓ.

Alarms

Alarm number
Alarm time
(Hour : Minutes)

Timekeeping Mode time
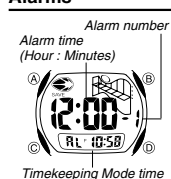
You can set five independent Daily Alarms. When an alarm is turned on, the alarm tone sounds when the alarm time is reached. One of the alarms can be configured as a snooze alarm or a one-time alarm, while the other four are one-time alarms.
You can also turn on an Hourly Time Signal that causes the watch to beep twice every hour on the hour, and a brightness alarm that beeps whenever the watch is moved from an area where it is dark to an area where it is light.

- There are five alarm screens numbered ¦ through **5**. The hourly time signal screen is indicated by :**00**. The brightness alarm screen shows **On** or **OFF**.
- When you enter the Alarm Mode, the screen 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 Ⓒ.

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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.

```
 -1  →  -2  →  -3  →  -4
  ↑                      ↓
On or OFF ←  :00  ←  -5
```
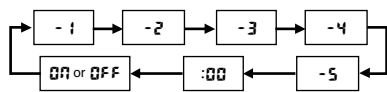
- You can configure Alarm ⫼ as a snooze alarm or a one-time alarm. Alarms ⧖ through ⑸ can be used as one-time alarms only.
- The snooze alarm repeats every five minutes.
2. After you select an alarm, hold down Ⓐ until the hour setting of the alarm time starts to flash. This indicates the setting screen.
3. Press Ⓒ to move the flashing between the hour and minute settings.
4. While a setting is flashing, use Ⓓ (+) and Ⓑ (–) to change it.
   - When setting the alarm time using the 12-hour format, take care to set the time correctly as a.m. (no indicator) or p.m. (**P** indicator).
5. Press Ⓐ to exit the setting screen.

Alarm Operation

The alarm sounds at the preset time for about 10 seconds. In the case of the snooze alarm, the alarm operation is performed a total of seven times, every five minutes, until you turn the alarm off or change it to a one-time alarm.
The watch also has a brightness alarm. When turned on, the brightness alarm causes the watch to beep for 10 seconds when the watch is brought from the dark into the light. The following are the conditions for brightness alarm operation.
- The watch needs to be in the dark for about 30 to 35 minutes for the brightness alarm to become activated.
- The brightness alarm sounds about 15 to 20 minutes after the watch is next exposed to light.
- The brightness alarm sounds only once and then turns off automatically.

Note
- 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 Alarm ⫼ setting screen
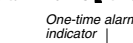
To test the alarm
In the Alarm Mode, hold down Ⓓ to sound the alarm.

To turn Alarms ⧖ through ⑸ on and off

One-time alarm on indicator

1. In the Alarm Mode, use Ⓓ to select a one-time alarm (alarm number ⧖ through ⑸).
2. Press Ⓑ to toggle the displayed alarm on and off.
- Turning on a one-time alarm (⧖ through ⑸) displays the one-time alarm on indicator (**ALM**) on its screen.
- The one-time alarm on indicator is displayed in all modes.
- If any alarm is on, the alarm on indicator is shown on the display in all modes.

To select the operation of Alarm ⫼
1. In the Alarm Mode, use Ⓓ to select Alarm ⫼.
2. Press Ⓑ to cycle through the available settings in the sequence shown below.

SNZ indicator and one-time alarm on indicator

ALM	SNZ ALM	
One-time alarm on	Snooze alarm on	Alarm off
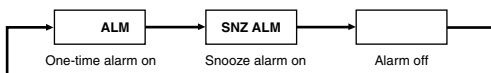
- The applicable alarm on indicator (**ALM** or **SNZ ALM**) is displayed in all modes when an alarm is turned on.
- The **SNZ** indicator flashes during the 5-minute intervals between alarms.
- Displaying the Alarm ⫼ setting screen while the snooze alarm is turned on automatically turns off the snooze alarm (making Alarm ⫼ a one-time alarm).

To turn the hourly time signal and the brightness alarm on and off

Hourly time signal on indicator
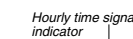
1. In the Alarm Mode, use Ⓓ to select the Hourly Time Signal or the brightness alarm.
2. Press Ⓑ to toggle the displayed item on and off.
- Turning on the Hourly Time Signal displays the hourly time signal on indicator (**SIG**) on its screen.
- Turning on the brightness alarm displays the brightness alarm on indicator (**BRT**) on its screen.
- The hourly time signal on indicator and brightness alarm on indicator are displayed in all modes.

Brightness alarm on indicator

Stopwatch

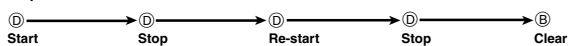*Hours   Minutes   Seconds*
1/100 second
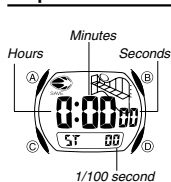
The stopwatch lets you measure elapsed time, split times, and two finishes.
- The display range of the stopwatch is 99 hours, 59 minutes, 59.99 seconds.
- The stopwatch continues to run, restarting from zero after it reaches its limit, until you stop it.
- The stopwatch measurement operation continues even if you exit the Stopwatch Mode.
- Exiting the Stopwatch Mode while a split time is frozen on the display clears the split time and returns to elapsed time measurement.
- All of the operations in this section are performed in the Stopwatch Mode, which you enter by pressing Ⓒ.

To measure times with the stopwatch

Elapsed Time

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

Split Time

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

Two Finishes

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

Dual Time

Dual time (Hour : Minutes Seconds)

Timekeeping Mode time

The Dual Time Mode lets you keep track of time in a different time zone.
- The seconds count of the Dual Time is synchronized with the seconds count of the Timekeeping Mode.

To set the Dual Time
1. Press Ⓒ to enter the Dual Time Mode.
2. Use Ⓐ, Ⓑ, and Ⓓ to set the Dual Time Mode time.
- Each press of Ⓓ (+) and Ⓑ (–) changes the time setting in 30-minute increments.
- Pressing Ⓐ sets the Dual Time Mode to the same time as the Timekeeping Mode.

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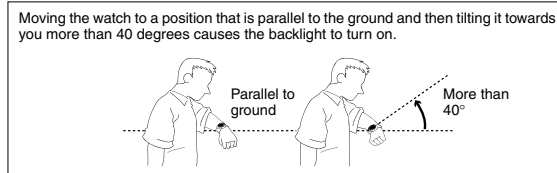- The auto light switch must be turned on (indicated by the auto light switch on indicator) for it to operate.
- See "Backlight Precautions" for other important information about using the backlight.

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.

Parallel to ground   *More than 40°*

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 the Timekeeping Mode, hold down Ⓓ for about two seconds to toggle the auto light switch on (**AUTO EL** displayed) and off (**AUTO EL** not displayed).
- The auto light switch on indicator (**AUTO EL**) 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.
- Note that charging efficiency drops when any part of the solar cell is blocked by clothing, etc.
- The illustration shows how to position a watch with a resin band.

Solar cell
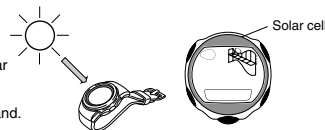
Important!
- Storing the watch for long periods in an area where there is no light or wearing it in such a way that it is blocked from exposure to light can cause rechargeable battery power to run down. Be sure that the watch is normally exposed to bright light whenever possible.

• 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. Should you notice problems with 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 5 and when you have the battery replaced.
• Turn on the watch's Power Saving function and keep it in an area normally exposed to bright light when storing it for long periods. This helps to keep the rechargeable battery from going dead.

Battery Power 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		All functions enabled.
4	(Charge Soon Alert)	Beeper tone, backlight, display, and buttons are disabled.
5		All functions, including timekeeping, are disabled.

• The flashing ▽ indicator at Level 4 tells you that battery power is very low, and that exposure to bright light for charging is required as soon as possible.
• At Level 5, all functions are disabled and settings return to their initial factory defaults. Functions are enabled once again after the rechargeable battery is charged, but you need to set the current time, date, and all other settings after the battery is recharged to Level 3 from Level 5. Though the time appears on the display after the battery is charged to Level 4, you will not be able to change the time setting until the battery reaches 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 any of the alarm functions a number of times during a short period, **RECOVER** appears on the display and the following operations become disabled until battery power recovers.
  Backlight
  Beeper tone
  After some time, battery power will recover and **RECOVER** will disappear, indicating that the above functions are enabled again.

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 nine months, while the watch is used under the conditions described below.

Operating Conditions
• *Watch is not exposed to light*
• *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*
• *1 countdown timer operation per day*

Charge Times

Exposing the watch to light for the periods shown below each day restores the power used by the above operating conditions.

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

• 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 5 → Level 4	Level 4 → Level 3	Level 3 → Level 2	Level 2 → Level 1
Outdoor Sunlight (50,000 lux)	65 minutes		18 hours	4 hours
Sunlight Through a Window (10,000 lux)	4 hours		98 hours	19 hours
Daylight Through a Window on a Cloudy Day (5,000 lux)	7 hours		– – –	
Indoor Fluorescent Lighting (500 lux)	60 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.

Power Saving Function

When turned on, the Power Saving function automatically puts the watch into a sleep state whenever it is left in an area where it is dark for 30 to 35 minutes. The sleep state is indicated by a blank screen with **SLEEP** flashing on it. In the sleep state, all functions are enabled, except for the display.
• Wearing watch inside the sleeve of clothing can cause it to enter the sleep state.

To recover from the sleep state
Perform any one of the following operations.
• Move the watch to a well-lit area. It can take up to five 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 Ⓐ until the seconds start to flash, which indicates the setting screen.
2. Press Ⓒ seven times until the Power Saving on/off screen appears.
3. Press Ⓓ to toggle Power Saving on (**ON**) and off (**OFF**).
4. Press Ⓐ twice 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.

Moon Phase Indicator

The Moon phase indicator of this watch indicates the current phase of the Moon as shown below.

(part you cannot see) — Moon phase (part you can see)

Moon Phase Indicator							
Moon Age	0, 1, 29	2 - 5	6 - 9	10 - 13	14 - 16	17 - 20	21 - 24	25 - 28
Moon Phase	New Moon		First Quarter (Waxing)		Full Moon		Last Quarter (Waning)	

• The Moon phase indicator shows the Moon as viewed at noon from a position in the Northern Hemisphere looking south. Note that at times the image shown by the Moon phase indicator may differ from that of the actual Moon in your area.
• The left-right orientation of the Moon phase is reversed when viewing from the Southern Hemisphere or from a point near the equator.

Moon Phases and Moon Age

The Moon goes through a regular 29.53-day cycle during which it appears to wax and wane due to how the Sun illuminates the Moon and the relative positioning of the Earth, Moon, and Sun. The greater the angular distance between the Moon and the Sun,* the more we see illuminated.
 The angle to the Moon in relation to the direction at which the Sun is visible from the Earth.
This watch perform a rough calculation of the current Moon age starting from day 0 of the moon age cycle. The actual Moon age average cycle is 29.53 days, but this can vary anywhere from –1 day to +1 day for specific months. Since this performs calculations using integer values only (no fractions), the margin for error of the displayed Moon age is ±2 days.

Tide Graph

The black bar on the watch's tide graph indicates the current tide.

Low tide
High tide
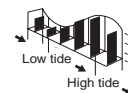
Tidal Movements

Tides are the periodic rise and fall of the water of oceans, seas, bays, and other bodies of water caused mainly by the gravitational interactions between the Earth, Moon and Sun. Tides rise and fall about every six hours. The tide graph of this watch indicates tidal movement based on the Moon's transit over a meridian and the lunitidal interval. The lunitidal interval differs according to your current location, so you must specify a lunitidal interval in order to obtain the correct tide graph readings.

Lunitidal Interval

Theoretically, high tide is at the Moon's transit over the meridian and low tide is about six hours later. Actual high tide occurs somewhat later, due to factors such as viscosity, friction, and underwater topography. Both the time differential between the Moon's transit over the meridian until high tide and the time differential between the Moon's transit over the meridian until low tide are known as the "lunitidal interval." When setting the lunitidal interval for this watch, use the time differential between the Moon's transit over the meridian until high tide.

Auto Return Feature

If you leave a screen with flashing digits on the display for two or three minutes without performing any operation, the watch automatically saves any settings you have made up to that point and exits the setting screen.

Data and Setting 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.

Timekeeping

- Resetting the seconds to 00 while the current count is in the range of 30 to 59 causes the minutes to be increased by 1. In the range of 00 to 29, the seconds are reset to 00 without changing the minutes.
- With the 12-hour format, the **P** (PM) indicator appears on the display for times in the range of noon to 11:59 p.m. and no indicator appears for times in the range of midnight to 11:59 a.m.
- With the 24-hour format, times are displayed in the range of 0:00 to 23:59, without any indicator.
- The year can be set in the range of 2000 to 2039.
- The watch's built-in full automatic calendar automatically makes allowances for different month lengths and leap years. Once you set the date, there should be no reason to change it except when battery power drops to Level 5.

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 runs down the battery.

Auto light switch precautions

- Wearing the watch on the inside of your wrist and movement or vibration of your arm can cause the auto light switch to activate and illuminate 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.

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 in about one second, even if you keep the watch pointed towards your face.
- Static electricity or magnetic force can interfere with proper operation of the auto light switch. If 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.

Site Data List

Site	GMT Differential		Longitude	Latitude
	Standard Time	DST/Summer		
ABIDJAN	0.0	1.0	4°W	5°N
ABU DHABI	4.0	5.0	54°E	24°N
ADDIS ABABA	3.0	4.0	39°E	9°N
ADEN	3.0	4.0	45°E	13°N
AMSTERDAM	1.0	2.0	5°E	52°N
ANCHORAGE	−9.0	−8.0	149°W	61°N
ATHENS	2.0	3.0	24°E	38°N
AZORES	−1.0	0.0	25°W	38°N
BANGKOK	7.0	8.0	101°E	14°N
BEIJING	8.0	9.0	116°E	40°N
BEIRUT	2.0	3.0	36°E	34°N
BOGOTA	−5.0	−4.0	74°W	5°N
BOSTON	−5.0	−4.0	71°W	42°N
BRASILIA	−3.0	−2.0	48°W	16°S
BUENOS AIRES	−3.0	−2.0	58°W	35°S
CAPE TOWN	2.0	3.0	18°E	34°S
CARACAS	−4.0	−3.0	67°W	11°N
CASABLANCA	0.0	1.0	8°W	34°N
CHICAGO	−6.0	−5.0	88°W	42°N
CHRISTCHURCH	12.0	13.0	173°E	44°S
DAKAR	0.0	1.0	17°W	15°N
DALLAS FORT WORTH	−6.0	−5.0	97°W	33°N
DAMASCUS	2.0	3.0	36°E	34°N
DENVER	−7.0	−6.0	105°W	40°N
DETROIT	−5.0	−4.0	83°W	42°N
DHAKA	6.0	7.0	90°E	24°N
DUBAI	4.0	5.0	55°E	25°N
DUBLIN	0.0	1.0	6°W	53°N
EDMONTON	−7.0	−6.0	114°W	54°N
EL PASO	−7.0	−6.0	106°W	32°N
FRANKFURT	1.0	2.0	9°E	50°N
GOLD COAST	10.0	11.0	154°E	28°S
GUAM	10.0	11.0	145°E	13°N
HAMBURG	1.0	2.0	10°E	54°N
HANOI	7.0	8.0	106°E	21°N
HELSINKI	2.0	3.0	25°E	60°N
HONG KONG	8.0	9.0	114°E	22°N
HONOLULU	−10.0	−9.0	158°W	21°N
HOUSTON	−6.0	−5.0	95°W	30°N
ISTANBUL	2.0	3.0	29°E	41°N
JAKARTA	7.0	8.0	107°E	6°S
JEDDAH	3.0	4.0	39°E	22°N
KARACHI	5.0	6.0	67°E	25°N
KUALA LUMPUR	8.0	9.0	102°E	3°N
KUWAIT	3.0	4.0	48°E	29°N
LA PAZ	−4.0	−3.0	68°W	17°S
LAS VEGAS	−8.0	−7.0	115°W	36°N
LIMA	−5.0	−4.0	77°W	12°S
LISBON	0.0	1.0	9°W	39°N

Site	GMT Differential		Longitude	Latitude
	Standard Time	DST/Summer		
LONDON	0.0	1.0	0°E	52°N
LOS ANGELES	−8.0	−7.0	118°W	34°N
MADRID	1.0	2.0	4°W	40°N
MANILA	8.0	9.0	121°E	15°N
MELBOURNE	10.0	11.0	145°E	38°S
MEXICO CITY	−6.0	−5.0	99°W	19°N
MIAMI	−5.0	−4.0	80°W	26°N
MILAN	1.0	2.0	9°E	45°N
MONTEVIDEO	−3.0	−2.0	56°W	35°S
MONTREAL	−5.0	−4.0	74°W	46°N
MUSCAT	4.0	5.0	59°E	24°N
NADI	12.0	13.0	177°E	18°S
NAIROBI	3.0	4.0	37°E	1°S
NAURU ISLAND	12.0	13.0	167°E	1°S
NEW ORLEANS	−6.0	−5.0	90°W	30°N
NEW YORK	−5.0	−4.0	74°W	41°N
NOME	−9.0	−8.0	165°W	64°N
NOUMEA	11.0	12.0	166°E	22°S
PAGO PAGO	−11.0	−10.0	171°W	14°N
PANAMA CITY	−5.0	−4.0	80°W	9°N
PAPEETE	−10.0	−9.0	150°W	18°S
PARIS	1.0	2.0	2°E	49°N
PERTH	8.0	9.0	116°E	32°S
PHNOM PENH	7.0	8.0	105°E	12°N
PORT OF SPAIN	−4.0	−3.0	62°W	11°N
PORT VILA	11.0	12.0	168°E	18°S
PRAIA	−1.0	0.0	24°W	15°N
PYONGYANG	9.0	10.0	126°E	39°N
RIYADH	3.0	4.0	47°E	25°N
ROME	1.0	2.0	13°E	42°N
SAN FRANCISCO	−8.0	−7.0	122°W	38°N
SANTIAGO	−4.0	−3.0	71°W	33°S
SAO PAULO	−3.0	−2.0	47°W	24°S
SEATTLE	−8.0	−7.0	122°W	48°N
SEOUL	9.0	10.0	127°E	38°N
SHANGHAI	8.0	9.0	121°E	31°N
SINGAPORE	8.0	9.0	104°E	1°N
STOCKHOLM	1.0	2.0	18°E	59°N
SYDNEY	10.0	11.0	151°E	34°S
TAIPEI	8.0	9.0	121°E	25°N
TOKYO	9.0	10.0	140°E	36°N
ULAANBAATAR	8.0	9.0	107°E	48°N
VANCOUVER	−8.0	−7.0	123°W	49°N
VIENNA	1.0	2.0	16°E	48°N
VIENTIANE	7.0	8.0	103°E	18°N
WELLINGTON	12.0	13.0	175°E	41°S
WINNIPEG	−6.0	−5.0	97°W	50°N

• *Based on data as of 2003.*

Lunitidal Interval List

Site	Lunitidal Interval	Site	Lunitidal Interval
ANCHORAGE	5:40	LIMA	5:20
BANGKOK	4:40	LISBON	2:00
BOSTON	11:20	LONDON	1:10
BUENOS AIRES	6:00	LOS ANGELES	9:20
CASABLANCA	1:30	MANILA	10:30
DAKAR	7:40	MELBOURNE	2:10
GOLD COAST	8:30	MIAMI	7:30
HAMBURG	4:50	NOUMEA	8:30
HONG KONG	9:10	PAGO PAGO	6:40
HONOLULU	3:40	PANAMA CITY	3:00
JAKARTA	0:00	PAPEETE	0:10
JEDDAH	6:30	SEATTLE	4:20
KARACHI	10:10	SHANGHAI	1:20
SINGAPORE	10:20	VANCOUVER	5:10
SYDNEY	8:40	WELLINGTON	4:50

• *Based on data as of June 2001.*

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