

Operation Guide 3216 3223

CASIO®

Getting Acquainted

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

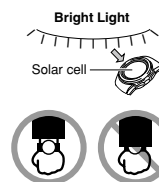
- Be sure to keep all user documentation handy for future reference.

Warning!

- The measurement functions built into this watch are not intended for taking measurements that require professional or industrial precision. Values produced by this watch should be considered as reasonable representations only.
- The 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.
- Note that CASIO COMPUTER CO., LTD. assumes no responsibility for any damage or loss suffered by you or any third party arising through the use of this product or its malfunction.

E

Keep the watch exposed to bright light



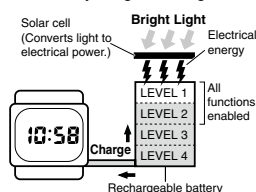
The electricity generated by the solar cell of the watch is stored by a rechargeable battery. Leaving or using the watch where it is not exposed to light causes the battery to run down. Make sure the watch is exposed to light as much as possible.

- When you are not wearing the watch on your wrist, position the face so it is pointed at a source of bright light.
- You should try to keep the watch outside of your sleeve as much as possible. Charging is reduced significantly if the face is covered only partially.

E-1

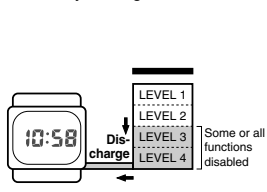
- The watch continues to operate, even when it is not exposed to light. Leaving the watch in the dark can cause the battery to run down, which will result in some watch functions to be disabled. If the battery goes dead, you will have to re-configure watch settings after recharging. To ensure normal watch operation, be sure to keep it exposed to light as much as possible.

Battery charges in the light.



E-2

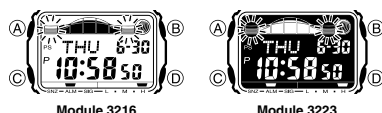
Battery discharges in the dark.



E-3

About This Manual

- Depending on the model of your watch, display text appears either as dark figures on a light background (Module 3216), or light figures on a dark background (Module 3223). All of the illustrations in this manual show Module 3216.
- 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.



E-4

Contents

General Guide	E-8
Timekeeping	E-10
Tide/Moon Data	E-16
World Time	E-23
Alarms	E-26
Stopwatch	E-31
Countdown Timer	E-33
Illumination	E-37
Power Supply	E-41
Tide Site Name	E-49
Reference	E-52
Specifications	E-65

E-5

Procedure Lookup

The following is a handy reference list of all the operational procedures contained in this manual.

To set the time and date	E-11
To change the Daylight Saving Time (summer time) setting	E-15
To adjust the high tide time	E-20
To reverse the displayed Moon phase	E-22
To view the time in another city	E-24
To toggle a city code time between Standard Time and Daylight Saving Time	E-25
To set an alarm time	E-27
To test the alarm	E-28
To turn an alarm on and off	E-29

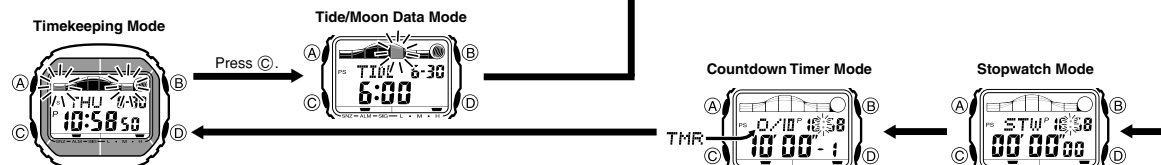
E-6

To turn the Hourly Time Signal on and off	E-30
To measure times with the stopwatch	E-32
To configure the countdown timer	E-34
To use the countdown timer	E-36
To illuminate the display manually	E-37
To specify the illumination duration	E-38
To turn the auto light switch on and off	E-40
To configure tide site settings	E-49
To turn the button operation tone on and off	E-58
To recover from the sleep state	E-60
To turn Power Saving on and off	E-60

E-7

General Guide

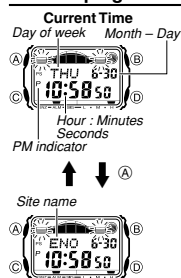
- Press (C) to change from mode to mode.
- In any mode (except when a setting screen is on the display), press (B) to illuminate the display.
- When you return to the Timekeeping Mode, the day of the week will be displayed after the name of the site you selected. See "Tide Site Name List" (page L-2) for more information about the site.



E-8

E-9

Timekeeping



E-10

Press the (A) button to view the current site name setting. Use the Timekeeping Mode to set and view the current time and date.

Read This Before You Set the Time and Date!

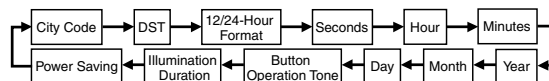
This watch is preset with a number of city codes, each of which represents the time zone where that city is located. When setting the time, it is important that you first select the correct city code for your Home City (the city where you normally use the watch). If your location is not included in the preset city codes, select the preset city code that is in the same time zone as your location. • Note that all of the times for the World Time Mode city codes (page E-23) are displayed in accordance with the time and date settings you configure in the Timekeeping Mode.

To set the time and date



1. In the Timekeeping Mode hold down (A) until the city code starts to flash, which indicates the setting screen.
2. Use (D) and (B) to select the city code you want.
 - Make sure you select your Home City code before changing any other setting.
 - For full information on city codes, see the "City Code Table" at the back of this manual.

3. Press (C) to move the flashing in the sequence shown below to select the other settings.



E-11

- The following steps explain how to configure timekeeping settings only.
- 4. When the timekeeping setting you want to change is flashing, use (D) or (B) to change it as described below.

Screen:	To do this:	Do this:
TYO	Change the city code	Use (D) (east) and (B) (west).
ON	Toggle between Daylight Saving Time (ON) and Standard Time (OFF).	Press (D).
12H	Toggle between 12-hour (12H) and 24-hour (24H) timekeeping	Press (D).
50	Reset the seconds to 00	Press (D).
P 10:58	Change the hour and minutes	Use (D) (+) and (B) (-).

E-12

Screen:	To do this:	Do this:
20 11 6:30	Change the year, month, or day	Use (D) (+) and (B) (-).
MUTE / KEY	Toggle the button operation tone between KEY (on) and MUTE (off)	Press (D).
LT 1	Toggle the illumination duration between LT 1 (approximately 1.5 seconds) and LT 3 (approximately 3 seconds).	Press (D).
PS 00	Toggle between Power Saving on (00) and off (0F F)	Press (D).

5. Press (A) to exit the setting screen.
- The day of the week is displayed automatically in accordance with the date (year, month, and day) settings.

E-13

12-hour and 24-hour timekeeping

- With the 12-hour format, the P (PM) indicator appears to the left of the hour digits for times in the range of noon to 11:59 p.m. and no indicator appears to the left of the hour digits for times in the range of midnight to 11:59 a.m.
- With the 24-hour format, times are displayed in the range of 0:00 to 23:59, without any indicator.
- The 12-hour/24-hour timekeeping format you select in the Timekeeping Mode is applied in all other modes.

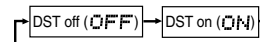
Daylight Saving Time (DST)

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

To change the Daylight Saving Time (summer time) setting



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



4. When the setting you want is selected, press (A) twice to exit the setting screen.
- The DST indicator appears to indicate that Daylight Saving Time is turned on.

E-14

E-15

Tide/Moon Data

In the Tide/Moon Data Mode, you can see the tide for the tide site you selected at specified time and the current date's moon phase for your Home City. You can specify a date and view tide and moon data for that date.

- See "Moon Phase Indicator" (page E-52) for information about the moon phase indicator and "Tide Graph" (page E-56) for information about the tide graph.
- All of the operations in this section are performed in the Tide/Moon Data Mode (page E-8).

Note

- It takes about two seconds to calculate tide graph data. You will not be able to display a setting screen while data calculation is in progress.
- Moon age is calculated to an accuracy of ± 1 day.
- You can view the current tide and moon age graph in the Timekeeping Mode (page E-10).

Tide Data

The Tide Graph that appears first when you enter the Tide/Moon Data Mode shows the data at 6:00 a.m. for your currently selected tide site on the current date, according to the Timekeeping Mode. From there you can specify another time on the same date.

- If the tide data is not correct, check your Timekeeping Mode settings and correct them if necessary. See "To configure tide site settings" (page E-49) for more information.
- If you feel that the information shown by the Tide Graph is different from actual tide conditions, you need to adjust the high tide time. See "Adjusting the High Tide Time" (page E-19) for more information.

Moon Data

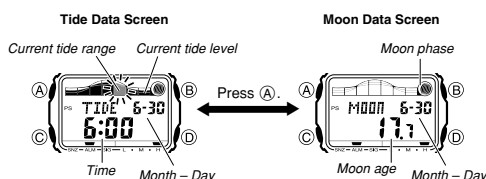
The moon phase and moon age information that appears first when you enter the Tide/Moon Data Mode shows the data at noon for your currently selected Home City on the current date, according to the Timekeeping Mode. After that you can specify another date to view data.

- If the moon data is not correct, check your Timekeeping Mode settings and correct them if necessary.
- If the moon phase indicator shows a phase that is a mirror image of the actual moon phase in your area, you can use the procedure under "Reversing the Displayed Moon Phase" (page E-21) to change it.

E-17

Tide/Moon Data Screens

In the Tide/Moon Data Mode, press (A) to toggle between the tide data screen and the moon data screen.



E-18

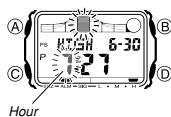
- When you display the Tide Data Screen, it initially shows tide data for 6:00 a.m.
- Use the Tide Data Screen to specify the Tide Data time. You can use (D) to change the displayed time in one-hour increments. The Tide Data time is scrolled within the current date only. Scrolling past midnight does not change the date.
- Use the Moon Data Screen to specify the Tide/Moon Data date. You can use (D) to change the displayed date in one-day increments. Pressing (D) will display the year of the displayed date.

Adjusting the High Tide Time

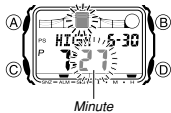
Use the following procedure to adjust the high tide time within a particular date. You can find out high tide information for your area from a tide table, the Internet, or your local newspaper.

E-19

To adjust the high tide time



Hour



Minute

1. In the Tide/Moon Data Mode, use (A) to display the Moon Data Screen (page E-18).
2. Use (D) to scroll the date until one whose high tide time you want to change is displayed.
3. Hold down (A) until the hour digits start to flash.
4. Use (D) (+) and (B) (-) to change the hour setting.
5. When the hour is the setting you want, press (C).
- This will cause the minute digits to flash.
6. Use (D) (+) and (B) (-) to change the minute setting.
7. When the minute setting is the way you want, press (A) to exit the adjustment screen and return to the Tide/Moon Data Mode screen.
- Pressing (D) and (B) at the same time while the time adjustment screen is displayed (steps 4 through 7 above) will return the high tide time to its initial factory default setting.
- The high tide time setting is affected by the DST (summer time) setting of the Timekeeping Mode.

E-20

- On some days, there are two high tides. With this watch, you can adjust the first high tide time only. The second high tide time for that day is adjusted automatically based on the first high tide time.

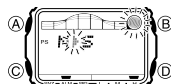
Reversing the Displayed Moon Phase

The left-right (east-west) appearance of the Moon depends on whether the Moon is north of you (northerly view) or south of you (southerly view) as you view it. You can use the procedure below to reverse the displayed Moon phase so it matches the actual appearance of the Moon where you are located.

- To determine the viewing direction of the Moon, use a compass to take a direction reading of the Moon at its meridian passage.
- For information about the Moon phase indicator, see "Moon Phase Indicator" (page E-52).

E-21

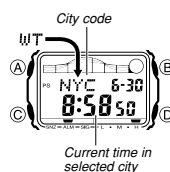
To reverse the displayed Moon phase



1. In the Tide/Moon Data Mode, hold down (A) until the hour digits start to flash.
2. Press (C) twice.
- This will cause the Moon phase indicator to flash. This is the indicator switching screen.
3. Press (D) to toggle the Moon phase indicator between the southerly view (indicated by N S) and northerly view (indicated by N S).
- Northerly view: Moon is north of you.
- Southerly view: Moon is south of you.
4. When the Moon phase indicator setting is the way you want, press (A) to exit the switching screen and return to the Tide/Moon Data Mode screen.

E-22

World Time



Current time in selected city

World Time shows the current time in 48 cities (31 time zones) around the world.

- The times kept in the World Time Mode are synchronized with the time being kept in the Timekeeping Mode. If you feel that there is an error in any World Time Mode time, check to make sure you have the correct city selected as your Home City. Also check to make sure that the current time as shown in the Timekeeping Mode is correct.
- Select a city code in the World Time Mode to display the current time in any particular time zone around the globe. See the "City Code Table" at the back of this manual for information about the UTC differential settings that are supported.
- All of the operations in this section are performed in the World Time Mode, which you enter by pressing (C) (page E-9).

E-23

To view the time in another city

While in the World Time Mode, press (D) (eastward) to scroll through the city codes (time zones).

- Pressing the (D) and (B) at the same time will jump to the UTC time zone.

E-24

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

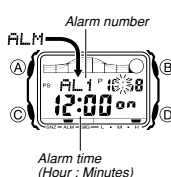


DST indicator

1. In the World Time Mode, press (D) to display the city code (time zone) whose Standard Time/Daylight Saving Time setting you want to change.
2. Hold down (A) to toggle between Daylight Saving Time (DST indicator displayed) and Standard Time (DST indicator not displayed).
- The DST indicator is shown on the World Time Mode screen while Daylight Saving Time is turned on.
- Note that the Standard Time/Daylight Saving Time setting affects only the currently displayed city code. Other city codes are not affected.
- Note that you cannot switch between Standard Time and Daylight Saving Time while UTC is selected as the city code.

E-25

Alarms



Alarm time (Hour : Minutes)

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.

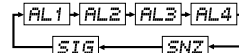
- There are five alarm screens numbered AL1, AL2, AL3, and AL4 for the one-time alarm, and a snooze alarm screen indicated by SNZ. The Hourly Time Signal screen is indicated by SIG.
- All of the operations in this section are performed in the Alarm Mode, which you enter by pressing (C) (page E-9).

E-26

To set an alarm time



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



- To set a one-time alarm, display alarm screen AL1, AL2, AL3, or AL4.
 - To set the snooze alarm, display the SNZ screen.
 - The snooze alarm repeats every five minutes.
2. After you select an alarm, hold down (A) until the hour setting of the alarm time starts to flash, which indicates the setting screen.
 - This operation turns on the alarm automatically.
 3. Press (C) to move the flashing between the hour and minute settings.
 4. While a setting is flashing, use (D) (+) and (B) (-) to change it.
 - With the 12-hour format, set the time correctly as a.m. or p.m. (P indicator).
 5. Press (A) to exit the setting screen.

E-27

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, until you turn the alarm off (page E-29).

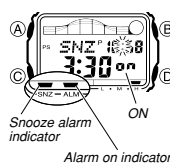
- Alarm and Hourly Time Signal operations are performed in accordance with the Timekeeping Mode time.
- To stop the alarm tone after it starts to sound, press any button.
- Performing any one of the operations below during a 5-minute interval between snooze alarms cancels the current snooze alarm operation.
- Displaying the Timekeeping Mode setting screen (page E-11)
- Displaying the SNZ setting screen (page E-27)

To test the alarm

In the Alarm Mode, hold down (D) to sound the alarm.

E-28

To turn an alarm on and off



Snooze alarm indicator
Alarm on indicator

1. In the Alarm Mode, use (D) to select an alarm.
2. Press (A) to toggle it on and off.
- Turning on a alarm (AL1, AL2, AL3, AL4 or SNZ) displays the alarm on indicator on its Alarm Mode screen.
- In all modes, the alarm on indicator is shown for any alarm that currently is turned on.
- The alarm on indicator flashes while the alarm is sounding.
- The snooze alarm indicator flashes while the snooze alarm is sounding and during the 5-minute intervals between alarms.

E-29

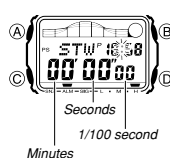
To turn the Hourly Time Signal on and off

1. In the Alarm Mode, use **(D)** to select the Hourly Time Signal (**Σ I G**).
 2. Press **(A)** to toggle it on and off.
- The Hourly Time Signal on indicator is shown on the display in all modes while this function is turned on.



E-30

Stopwatch



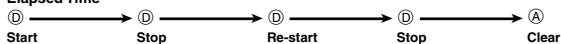
The stopwatch lets you measure elapsed time, split times, and two finishes.

- The display range of the stopwatch is 59 minutes, 59.99 seconds.
- The stopwatch continues to run, restarting from zero after it reaches its limit, until you stop it.
- The stopwatch measurement operation continues even if you exit the Stopwatch Mode.
- Exiting the Stopwatch Mode while a split time is frozen on the display clears the split time and returns to elapsed time measurement.
- All of the operations in this section are performed in the Stopwatch Mode, which you enter by pressing **(C)** (page E-9).

E-31

To measure times with the stopwatch

Elapsed Time



Split Time

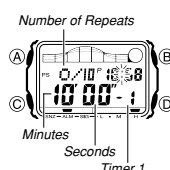


Two Finishes



E-32

Countdown Timer



Dual timers can be set with two different starting times. The watch can be configured so the two timers alternate, so when one reaches the end of its countdown, the other timer starts. You can specify a "number of repeats" value, which controls how many times the two-timer countdown operation is performed (1 = once, 2 = twice, etc.). The starting time of each timer can be set in five-second steps up to 99 minutes, 55 seconds.

You can specify up to 10 repeats. The watch emits a short beep whenever either of the timers reaches the end of its countdown during an ongoing timer operation. The watch emits a 5-second beep when the end of the final timer operation (specified by the number of repeats) is reached.

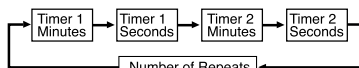
Countdown End Beeper

The countdown end beeper lets you know when the countdown reaches zero. The beeper stops after about 5 seconds or when you press any button.

E-33

To configure the countdown timer

1. While the countdown start time is on the display in the Countdown Timer Mode, hold down **(A)** until the current countdown start time starts to flash, which indicates the setting screen.
- If the countdown start time is not displayed, use the procedure under "To use the countdown timer" (page E-36) to display it.
2. Press **(C)** to move the flashing in the sequence shown below to select other settings.



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

Setting	Screen	Button Operation
Minutes, Seconds	00'00"	Use (D) (+) and (B) (-) to change the setting.
Number of Repeats	1	Use (D) (+) and (B) (-) to change the setting.

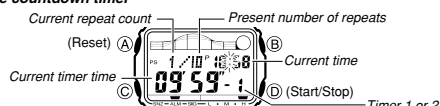
- To disable either timer, set 00'00" as its countdown start time.

4. Press **(A)** to exit the setting screen.

E-34

E-35

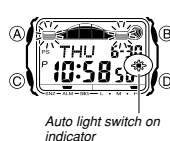
To use the countdown timer



- Press **(D)** while in the Countdown Timer Mode to start the countdown timer.
- The countdown is performed by alternating between Timer 1 and Timer 2. A short beep is emitted to signal a changeover from one timer to the other.
 - Pressing **(A)** while a countdown timer is stopped resets it to the start time specified by you.
 - Press **(D)** to pause a countdown. Press **(D)** again to resume.
 - The watch emits a 5-second beep when the end of the final timer operation (specified by the number of repeats) is reached.
 - Even if you exit the Countdown Timer Mode, the countdown timer operation continues and the watch beeps as required.
 - To stop a countdown operation completely, first pause it (by pressing **(D)**), and then press **(A)**. This returns the countdown time to its starting value.

E-36

Illumination



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

- The auto light switch must be turned on (indicated by the auto light switch on indicator) for it to operate.
- See "Illumination Precautions" (page E-63) for other important information about using illumination.

To illuminate the display manually

In any mode (except when a setting screen is on the display), press **(B)** to turn on illumination.

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

E-37

- You can use the procedure below to select either 1.5 seconds or 3 seconds as the illumination duration. When you press **(B)**, the illumination will remain on for about 1.5 seconds or 3 seconds, depending on the current illumination duration setting.

To specify the illumination duration

1. In the Timekeeping Mode, hold down **(A)** until the display contents start to flash. This is the setting screen.
2. Press **(C)** 10 times until the current illumination duration setting (**L T 1** or **L T 3**) appears.
3. Press **(D)** to toggle the setting between **L T 1** (approximately 1.5 seconds) and **L T 3** (approximately 3 seconds).
4. Press **(A)** to exit the setting screen.

E-38

About the Auto Light Switch

Turning on the auto light switch causes illumination to turn on, whenever you position your wrist as described below in any mode. Note that this watch features a "Full Auto EL Light", so the auto light switch operates only when available light is below a certain level. It does not 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 illumination to turn on.
- Wear the watch on the outside of your wrist.



E-39

Operation Guide 3216 3223

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Warning!

- Always make sure you are in a safe place whenever you are reading the display of the watch using the auto light switch. Be especially careful when running or engaged in any other activity that can result in accident or injury. Also take care that sudden illumination by the auto light switch does not startle or distract others around you.
- When you are wearing the watch, make sure that its auto light switch is turned off before riding 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 (B) for about three seconds to toggle the auto light switch on (auto light switch on indicator displayed) and 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.

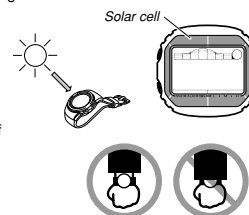
E-40

Power Supply

This watch is equipped with a solar cell and a rechargeable battery that is charged by the electrical power produced by the solar cell. The illustration shown below shows how you should position the watch for charging.

Example: Orient the watch so its face is pointing at a light source.

- The illustration shows how to position a watch with a resin band.
- Note that charging efficiency drops when any part of the solar cell is blocked by clothing, etc.
- You should try to keep the watch outside of your sleeve as much as possible. Charging is reduced significantly if the face is covered only partially.



E-41

Important!

- Storing the watch for long periods in an area where there is no light or wearing it in such a way that it is blocked from exposure to light can cause rechargeable battery power to run down. Be sure that the watch is exposed to bright light whenever possible.
- This watch uses a rechargeable battery to store power produced by the solar cell, so regular battery replacement is not required. However, after very long use, the rechargeable battery may lose its ability to achieve a full charge. If you experience problems getting the rechargeable battery to charge fully, contact your dealer or CASIO distributor about having it replaced.
- Never try to remove or replace the watch's rechargeable battery yourself. Use of the wrong type of battery can damage the watch.
- All data stored in memory is deleted, and the current time and all other settings return to their initial factory defaults whenever battery power drops to Level 5 (pages E-43 and E-44) and when you have the battery replaced.
- Turn on the watch's Power-Saving function (page E-59) 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.

E-42

Battery Power Indicator and Recover Indicator

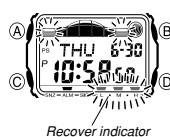
The battery power indicator on the display shows you the current status of the rechargeable battery's power.

Level	Battery Power Indicator	Function Status
1		All functions enabled.
2		All functions enabled.
3		Illumination, and beeper disabled.
4		Except for timekeeping and the CHG (charge) indicator, all functions and display indicators disabled.
5		All functions disabled.

E-43

- The flashing LOW indicator at Level 3 tells you that battery power is very low, and that exposure to bright light for charging is required as soon as possible.
- At Level 5, all functions are disabled and settings return to their initial factory defaults. Once the battery reaches Level 2 after falling to Level 5, reconfigure the current time, date, and other settings.
- The watch's Home City code setting will change automatically to **TYO** (Tokyo) whenever the battery drops to Level 5.
- Display indicators reappear as soon as the battery is charged from Level 5 to Level 2.
- Leaving the watch exposed to direct sunlight or some other very strong light source can cause the battery power indicator to show a reading temporarily that is higher than the actual battery level. The correct battery level should be indicated after a few minutes.

E-44



- Performing illumination, or beeper operations during a short period may cause the recover indicator to appear on the display. After some time, battery power will recover and the recover indicator 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.

E-45

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

E-46

Charging Guide

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

- For details about the battery operating time and daily operating conditions, see the "Power Supply" section of the Specifications (page E-66).
- Stable operation is promoted by frequent exposure to light.

E-47

Recovery Times

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

Exposure Level (Brightness)	Approximate Exposure Time				
	Level 5	Level 4	Level 3	Level 2	Level 1
Outdoor Sunlight (50,000 lux)		2 hours		20 hours	6 hours
Sunlight Through a Window (10,000 lux)		8 hours		99 hours	27 hours
Daylight Through a Window on a Cloudy Day (5,000 lux)		15 hours		-----	-----
Indoor Fluorescent Lighting (500 lux)		172 hours		-----	-----

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

E-48

Tide Site Name

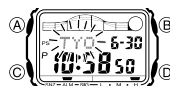
Selecting the Tide Site Name

The tide site names you can select depend on your current Home City setting.

- Select tide site names in the Timekeeping Mode.
- After configuring the settings for your Home City, press (A) once to display the tide site name selection screen.
- Note that the tide sites you can select are those located in the same time zone as your Home City. They are not necessarily located near your Home City.

To configure tide site settings

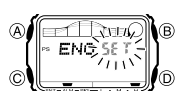
1. In the Timekeeping Mode, hold down (A) for about two seconds until the city code starts to flash. This is the setting screen.
 - The watch will exit the setting screen automatically if you do not perform any operation for about two or three minutes.



E-49

Operation Guide 3216 3223

CASIO®



- Press (A) once to display the tide site name selection screen.
 - The current tide site name will be on the display and SET will flash.
- Use (D) (forward) and (B) (back) to scroll through the tide site names until the one you want is displayed.
 - If the tide site name is longer than four characters, the name will scroll from right to left on the display.
 - A tide site that does not have any data assigned to it displays the name "USER".
- When all of the settings are the way you want, press (A) to exit the setting screen.
 - The tide graph in the Timekeeping Mode shows information for the site you select here.
 - The tide site candidates are those with the UTC differential as the current Home City. If you cannot find the site you want, you can select "USER".
 - Only "USER" sites may be available for some cities.

E-50

- Setting an accurate high tide time will allow the watch to produce accurate tide readings. Especially when "USER" is selected as the site, make sure that you input an accurate high tide time.
- Only a "USER" site can be selected while UTC is selected as the Home City.

E-51

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.

Moon Phase Indicator

Module 3216



Moon Phase Indicator

Module 3223



E-52

The Moon phase indicator of this watch indicates the current phase of the Moon as shown below. It is based on the view of the left side of the moon at meridian transit from the northern hemisphere of the Earth. If the appearance of the Moon phase indicator is reversed from the actual Moon as viewed from your location, you can use the procedure under "To reverse the displayed Moon phase" (page E-22) to change the indicator.

Moon Phase Indicator	Module 3216	(part you cannot see)								Moon phase (part you can see)							
	Module 3223																
Moon Age	28.7-29.8 0.0-0.9	1.0-2.7	2.8-4.6	4.7-6.4	6.5-8.3	8.4-10.1	10.2-12.0	12.1-13.8									
Moon Phase	New Moon				First Quarter (Waxing)												

E-53

Moon Phase Indicator	Module 3216	(part you cannot see)								Moon phase (part you can see)							
	Module 3223																
Moon Age	13.9-15.7	15.8-17.5	17.6-19.4	19.5-21.2	21.3-23.1	23.2-24.9	25.0-26.8	26.9-28.6									
Moon Phase	Full Moon				Last Quarter (Waning)												

E-54

E-55

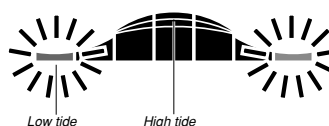
Tide Graph

The Tide Graph graphically represents the current tide condition using one of three patterns that represent spring tide, intermediate tide, and neap tide, as shown below.

Tide Name	Graph	Description
Spring Tide		Large difference between high tide and low tide. Occurs a few days before and after a New Moon and Full Moon.
Intermediate Tide		Medium difference between high tide and low tide.
Neap Tide		Small difference between high tide and low tide. Occurs a few days before and after the first quarter and last quarter of a half moon.

E-56

- The Tide Graph flashes as shown below to indicate the tide range.



- The segments on either end of the Tide Graph flash during high tide.

Lunitidal Interval

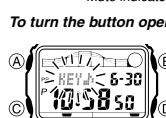
Theoretically, high tide is at the moon's transit over the meridian and low tide is about six hours later. Actual high tide occurs somewhat later, due to factors such as viscosity, friction, and underwater topography. Both the time differential between the moon's transit over the meridian until high tide and the time differential between the moon's transit over the meridian until low tide are known as the "lunitidal interval". Tides data is calculated using the lunitidal intervals preset for each site.

E-57

Button Operation Tone

- The button operation tone sounds any time you press one of the watch's buttons. You can turn the button operation tone on or off as desired.
- Even if you turn off the button operation tone, alarms, the Hourly Time Signal, and other beepers all operate normally.

Mute indicator



To turn the button operation tone on and off

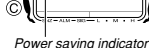
- In the Timekeeping Mode, hold down (A) until the city code starts to flash, which indicates the setting screen.
- Press (C) nine times until the current button operation tone setting (KEY or MUTE) appears.
- Press (D) to toggle the setting between KEY (tone on) and MUTE (tone off).
- Press (A) to exit the setting screen.

- The mute indicator is displayed in all modes when the button operation tone is turned off.

E-58

Power Saving Function

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



Power saving indicator

Elapsed Time in Dark	Display	Operation
60 to 70 minutes	Blank, with Power Saving indicator flashing	All functions enabled, except for the display
6 or 7 days	Blank, with Power Saving indicator not flashing	Beeper tone, illumination, and display are disabled.

- Wearing the watch inside the sleeve of clothing can cause it to enter the sleep state.

E-59

Operation Guide 3216 3223

CASIO®

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

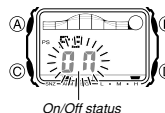
To recover from the sleep state

Perform any one of the following operations.

- Move the watch to a well-lit area.
- Press any button.
- Angle the watch towards your face for reading (page E-39).

To turn Power Saving on and off

- In the Timekeeping Mode, hold down (A) until the city code starts to flash, which indicates the setting screen.
 - Press (C) 11 times until the Power Saving on/off screen appears.
 - Press (D) to toggle Power Saving on (P) and off (OFF).
 - Press (A) to exit the setting screen.
- The Power Saving indicator is on the display in all modes while Power Saving is turned on.



E-60

Auto Return

- If you do not perform any operation for about two or three minutes while a setting screen (with a flashing setting) is on the display, the watch will exit the setting screen automatically.

Scrolling

The (B) and (D) 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 at high speed.

Initial Screens

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

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 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.
- The current time for all city codes in the Timekeeping Mode and World Time Mode is calculated in accordance with the Coordinated Universal Time (UTC) for each city, based on your Home City time setting.

World Time

- The seconds count of the World Time is synchronized with the seconds count of the Timekeeping Mode.

E-62

E-61

Illumination Precautions

- The electro-luminescent panel that provides illumination loses power after very long use.
- Illumination may be difficult 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.
- Illumination turns off automatically whenever an alarm sounds.
- Frequent use of illumination runs down the battery.

Auto light switch precautions

- Avoid wearing the watch on the inside of your wrist. Doing so causes the auto light switch to operate when it is not needed, which shortens battery life. If you want to wear the watch on the inside of your wrist, turn off the auto light switch feature.

More than 15 degrees too high



- Illumination may not turn on if the face of the watch is more than 15 degrees above or below parallel. Make sure that the back of your hand is parallel to the ground.
- Illumination turns off after a preset amount of time (1.5 or 3 seconds), even if you keep the watch pointed towards your face.

- Static electricity or magnetic force can interfere with proper operation of the auto light switch. If illumination does not turn on, try moving the watch back to the starting position (parallel with the ground) and then tilt it back 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, illumination may not turn on until about one second after you turn the face of the watch towards you. This does not necessarily indicate malfunction of the auto light switch.
- You may notice a very faint clicking sound coming from the watch when it is shaken back and forth. This sound is caused by mechanical operation of the auto light switch, and does not indicate a problem with the watch.

E-64

Specifications

Accuracy at normal temperature: ± 15 seconds a month

Timekeeping: Hour, minutes, seconds, p.m. (P), month, day, day of the week

Time format: 12-hour and 24-hour

Calendar system: Full Auto-calendar pre-programmed from the year 2000 to 2099

Other: Home City code (can be assigned one of 48 city codes); Standard Time / Daylight Saving Time (summer time); Checking a Tide Site

Tide/Moon Data:

Moon phase indicator for specific date; Tide level for specific date and time

Other: High tide time adjustment; Moon phase reversal

World Time: 48 cities (31 time zones)

Other: Daylight Saving Time/Standard Time

Alarms: 5 daily alarms (four one-time alarms; one snooze alarm); Hourly Time Signal

Stopwatch:

Measuring unit: 1/100 second

Measuring capacity: 59' 59.99"

Measuring modes: Elapsed time, split time, two finishes

E-63

Countdown Timer:

Number of timers: 2 (one set)

Setting unit: 5 seconds

Range: 99 minutes 55 seconds each timer

Countdown unit: 1 second

Number of repeats: 1 to 10

5-second time up beeper

Illumination: EL (electro-luminescent panel); Full Auto Light Switch; Selectable illumination duration

Other: Button operation tone on/off

Power Supply: Solar cell and one rechargeable battery

Approximate battery operating time: 11 months (from full charge to Level 4) under the following conditions:

- Watch not exposed to light
- Internal timekeeping
- Display on 18 hours per day, sleep state 6 hours per day
- 1 illumination operation (1.5 second) per day
- 10 seconds of alarm operation per day

E-66

City Code Table

City Code	City	UTC Offset/ GMT Differential
PPG	Pago Pago	-11
HNL	Honolulu	-10
ANC	Anchorage	-9
VVR	Vancouver	-8
LAX	Los Angeles	-8
YEA	Edmonton	-7
DEN	Denver	-7
MEX	Mexico City	-6
CHI	Chicago	-6
NYC	New York	-5
SCL	Santiago	-4
YHZ	Halifax	-4
YYT	St. Johns	-3.5

City Code	City	UTC Offset/ GMT Differential
RIO	Rio De Janeiro	-3
FEN	Fernando de Noronha	-2
RAI	Praia	-1
UTC		0
LIS	Lisbon	0
LON	London	0
MAD	Madrid	0
PAR	Paris	0
ROM	Rome	0
BER	Berlin	0
STO	Stockholm	0
ATH	Athens	0
CAI	Cairo	0
JRS	Jerusalem	0

City Code	City	UTC Offset/ GMT Differential
MOW	Moscow	+3
JED	Jeddah	+3
THR	Tehran	+3.5
DXB	Dubai	+4
KBL	Kabul	+4.5
KHI	Karachi	+5
DEL	Delhi	+5.5
KTM	Kathmandu	+5.75
DAC	Dhaka	+6
RGN	Yangon	+6.5
BKK	Bangkok	+7

City Code	City	UTC Offset/ GMT Differential
SIN	Singapore	+8
HKG	Hong Kong	+8
BJS	Beijing	+8
TPE	Taipei	+8
SEL	Seoul	+9
TYO	Tokyo	+9
ADL	Adelaide	+9.5
GUM	Guam	+10
SYD	Sydney	+10
NOU	Noumea	+11
WLG	Wellington	+12

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

L

L-1

Operation Guide 3216 3223

CASIO®

Tide Site Name List

City Code	Tide Site
LIS	NEWQUAY,GBR U.K.
LON	ABERDEEN,GBR U.K.
	KILLALA BAY,IRL IRELAND
	PENICHE,POR PORTUGAL
	CASCAIS,POR PORTUGAL
	FUNCHAL,MADEIRA MADEIRA
	LAS PALMAS GRAN CANARIA
	CASABLANCA,MAR MOROCCO
	SAFI,MAR MOROCCO
	DAKAR,SEN SENEGAL
	USER

City Code	Tide Site
MAD	BOUCAU,FRA FRANCE
PAR	PORTUGALETE, SPAIN
ROM	ESP
BER	GIJON,ESP SPAIN
STO	MARSEILLE,FRA FRANCE
	PALERMO,ITA ITALY
	USER
ATH	CAPE TOWN,RSA SOUTH AFRICA
CAI	DURBAN,RSA SOUTH AFRICA
JRS	MOSSEL BAY, SOUTH AFRICA
	USER
MOW	TOLANARO,MAD MADAGASCAR
JED	USER

City Code	Tide Site
THR	USER
DXB	LE PORT, REUNION REUNION
	PORT LOUIS, MAURITIUS
	MRI
	USER
KBL	USER
KHI	MALE, MALDIVES MALDIVES
	USER
DEL	GALLE,SRI SRI LANKA
	USER
KTM	USER

City Code	Tide Site
DAC	USER
RGN	USER
BKK	PHUKET THAILAND
	TELUK DALAM, INDONESIA
	NIAS
	PULAU TELO, INDONESIA
	INA
	SIBERUT,INA INDONESIA
	NORTH PAGAI, INDONESIA
	INA
	TANJUNG PRIOK INDONESIA
	USER

L-2

L-3

City Code	Tide Site
SIN	BENOA,BALI INDONESIA
HKG	AMPENAN, INDONESIA
BJS	LOMBOK
TPE	COWARAMUP AUSTRALIA
	FREMANTLE AUSTRALIA
	CATANDUANES, PHILIPPINES
	PHI
	SIARGAO,PHI PHILIPPINES
	USER
SEL	ENOSHIMA JAPAN
TYO	SHIMODA JAPAN
	SHIKINEJIMA JAPAN
	OMAEZAKI JAPAN

City Code	Tide Site
	IRAGO JAPAN
	WAKAYAMA JAPAN
	KANNOURA JAPAN
	HOSOSHIMA JAPAN
	NISHINOOMOTE JAPAN
	NAZE JAPAN
	NAHA JAPAN
	SENDAI JAPAN
	SOMA JAPAN
	KASHIMA JAPAN
	KAZUSA- JAPAN
	KATSUURA
	USER

City Code	Tide Site
ADL	VICTOR HARBOR AUSTRALIA
	USER
GUM	NOOSA HEADS AUSTRALIA
SYD	BUNDALL AUSTRALIA
	POINT DANGER AUSTRALIA
	TWEED RIVER AUSTRALIA
	BYRON BAY AUSTRALIA
	BALLINA AUSTRALIA
	SYDNEY AUSTRALIA
	ULLADULLA AUSTRALIA
	LORNE AUSTRALIA

City Code	Tide Site
	HOBART AUSTRALIA
	GUAM GUAM
	USER
NOU	NOUMEA NEW CALEDONIA
	USER
WLG	SUVA,FUJ FIJI ISLANDS
	RAGLAN,NZL NEW ZEALAND
	USER
PPG	PAGO PAGO AMERICAN
	SAMOA
	USER

L-4

L-5

City Code	Tide Site
HNL	HONOLULU U.S.A.
	WAIALUA BAY, U.S.A.
	OAHU
	KAHULUI,MAUI U.S.A.
	HILO BAY, U.S.A.
	HAWAII
	NAWILIWILI, U.S.A.
	KAUAI
	PAPEETE,TAHITI TAHITI
	USER
ANC	USER
YVR	SAN FRANCISCO U.S.A.
LAX	MONTEREY U.S.A.
	PORT SAN LUIS U.S.A.

City Code	Tide Site
	SANTA BARBARA U.S.A.
	PORT HUENEME U.S.A.
	SANTA MONICA U.S.A.
	L.A.HARBOR U.S.A.
	NEWPORT BAY U.S.A.
	LA JOLLA U.S.A.
	ENSENADA,MEX MEXICO
	USER
YEA	USER
DEN	USER
MEX	MANZANILLO,MEX MEXICO
CHI	PUNTARENAS,CRC COSTA RICA
	USER

City Code	Tide Site
NYC	ATLANTIC CITY U.S.A.
	VIRGINIA BEACH U.S.A.
	PORT CANAVERAL U.S.A.
	MIAMI HARBOR U.S.A.
	KINGSTON,JAM JAMAICA
	BALBOA,PAN PANAMA
	PUERTO EQUADOR
	LOPEZ,ECU
	PUERTO PERU
	CHICAMA
	USER
SCL	SANTO DOMINGO DOMINICAN R.
YHZ	SAN JUAN,PUR PUERTO RICO

City Code	Tide Site
	BRIDGETOWN BARBADOS
	VALPARAISO,CHI CHILE
	USER
YYT	USER
RIO	RIO DE BRAZIL
	JANEIRO
	SANTOS BRAZIL
	USER
FEN	F.D.NORONHA BRAZIL
	USER
RAI	PONTA AZORES
	DELGADA
	USER

• For information about city names, see the City Code Table (page L).

L-6

L-7