



## English

### Please Make Sure to Fully Charge the Watch Before Use

Check to make sure that the second hand of the watch is moving in 1-second intervals when worn on the wrist.

If it is moving in 2-second intervals, this means that the watch is not sufficiently charged.

Charge the watch by wearing the watch so that the back of the watch is in direct contact with your wrist at all times until the second hand returns to 1-second interval movement. This watch is provided with an overcharging prevention function that eliminates any worries that the watch may be overcharged no matter how long it is charged.

When the second hand is moving in 2-second hitch movement, this indicates that the watch has stopped running as a result of being insufficiently charged. When this happens, fully charge the watch and reset the time before further use.

## CONTENTS

|                                                                             |    |
|-----------------------------------------------------------------------------|----|
| 1. Main Features .....                                                      | 3  |
| 2. For Proper Power Generation .....                                        | 4  |
| • Power Generation Mechanism                                                |    |
| • Distinguishing Between Power Generating and Non-Power<br>Generating Modes |    |
| • General Reference for Charging Times                                      |    |
| • Hints for Effective Power Generation                                      |    |
| • Precautions During Power Generation                                       |    |
| • Don't Open the Back Cover of the Watch Unnecessarily                      |    |
| 3. Setting the Time and Calendar .....                                      | 8  |
| • Setting the Time                                                          |    |
| • Setting the Calendar                                                      |    |
| 4. Characteristic Functions .....                                           | 12 |
| 5. Warning Functions .....                                                  | 14 |
| • Insufficient Recharging Warning Function                                  |    |
| • Time Setting Warning Function                                             |    |
| 6. Secondary Battery .....                                                  | 16 |
| • Handling of the Secondary Battery                                         |    |
| • Only Use the Specified Battery                                            |    |
| • When Not Using for a Long Period of Time                                  |    |
| 7. Precautions .....                                                        | 17 |
| 8. Specifications .....                                                     | 23 |

## 1. Main Features

This watch is an analog quartz watch equipped with a thermoelectric generation function that drives the watch by converting body heat (heat energy), produced when wearing the watch on the wrist, into electrical energy.

Power is generated when the watch is worn on the wrist and the second hand is moving at 1-second intervals. When the watch is removed from the wrist, the second hand moves at 10-second intervals, indicating that power is not being generated.

When fully charged, the watch will run continuously for about six months without charging. To fully charge the watch after it has stopped due to insufficient charge requires about 15 days (continuous charging). To ensure optimal usefulness, make sure that the watch is always sufficiently charged.

This watch uses a secondary battery for storing the electrical energy that is generated. This secondary battery is completely free of mercury or other hazardous substances. It does not have to be replaced periodically in the manner of conventional watch batteries since it is able to be charged and discharged repeatedly.

## 2. For Proper Power Generation

### [Power Generation Mechanism]

When this watch is worn on the wrist, body heat from contact with the skin will heat up the back cover of the watch. This heat will be released into the air from the surface of the watch, and the temperature difference between the back cover and the watch surface will drive a thermoelectric generation device that generates electric energy. Power generation performance

varies considerably depending on air temperature, individual differences in body temperature and the manner in which the watch is worn. The standard usage environment of this watch is defined as wearing the watch so that the back cover is in direct contact with the wrist at an air temperature of about 25°C (77°F) and body temperature (surface temperature on the wrist) of 32°C (89.6°F).

Power generation performance increases as the temperature difference between the back cover and watch surface becomes larger, and decreases as the temperature difference becomes smaller. Power is no longer generated when the



surface temperature of the watch and the temperature of the back cover are equal or when the surface temperature exceeds that of the back cover. The watch is unable to generate sufficient power if the surface of the watch is covered with clothing or other objects. It is recommended to wear the watch so as to release the heat of the watch surface as much as possible.

### [Distinguishing Between Power Generating and Non-Power Generating Modes]

When power generation has stopped as a result of removing the watch from the wrist, the second hand moves at 10-second intervals indicating that power is not being generated. When power generation is resumed by putting the watch on your wrist or warming the back cover with your fingers, the second hand returns to 1-second interval movement.

#### **[General Reference for Charging Times]**

Wear the watch on the wrist for at least 5 hours per day to ensure one day's worth of charging at the time of 1-second interval movement. If the watch stops due to insufficient charge, full charge using the 1-second interval movement will take about 50 days provided that the watch is worn for 8 hours per day. However, make sure to attach the watch to the wrist in the correct manner, as the way the watch is attached will greatly affect the time required for charging. It is recommended to wear the watch daily to store an ample amount of electrical energy and increase the amount of charge retained by the watch.

#### **[Hints for Effective Power Generation]**

- Wear the watch so that the back cover is firmly against your wrist.
- Wear the watch so that heat is released from the watch surface.
- Do not allow the watch to be covered up with clothing (sleeves, gloves, winter gear, etc.).
- Try to wear the watch for long periods of time.
- Allowing air to blow over the upper surface of the watch while wearing it to lower the surface temperature makes it easier for the watch to generate power.

## **CAUTION**

#### **[Precautions During Power Generation]**

Warming the entire watch dissipates the temperature difference between the back cover and watch surface, thereby preventing power from being generated.

- Do not warm the surface of the watch by touching with your hand.
- Do not warm the watch with a heating or cooking appliance.
- Do not attempt to warm the watch with an open flame from a gas range, lighter or other heating device.
- Do not attempt to warm the watch with hot air from a hair dryer or other appliance.
- Do not warm the watch surface with direct sunlight.
- Leaving the watch in locations of high temperature may cause deterioration of the thermoelectric generation function.
- Do not leave the watch where it becomes high temperature [60°C (140°F) or higher] like on an automobile dashboard.

## **CAUTION**

#### **[Don't Open the Back Cover of the Watch Unnecessarily]**

Never open the back cover of the watch. This may prevent the watch from charging, cause it to stop running or result in defective water resistance.

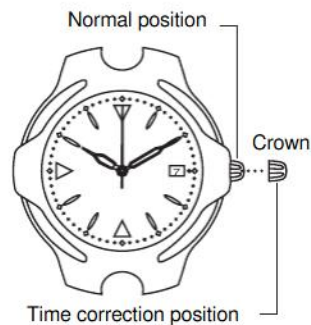
### 3. Setting the Time and Calendar

If the watch has stopped running due to insufficient charging or the second hand is moving at 2-second intervals when setting the time, first return the watch to 1-second interval movement before setting the time by charging with reference to the section entitled, "For Proper Power Generation". If the crown is a screw lock type, the screw should be loosened before the operation. Make sure to tighten the screw again after the settings are made.

#### [Setting the Time]

**<When the second hand is moving at 1-second intervals (generating electric power display) / 2-second intervals (insufficient recharging warning display) / 2-second hitch movement (time setting warning display)>**

1. Pull the crown twice to the time correction position when the second hand reaches the 0 seconds position.
2. Turn the crown to set the time.



- The date changes at AM 0. Make sure not to mistake AM for PM and vice versa when setting the time.
  - The date indication starts changing from around 9 PM and is completed around 1 AM.
  - A more precise setting of the time can be accomplished by advancing the minute hand 4 to 5 minutes from the correct time and then moving it back to the correct setting.
3. Return the crown to its normal position in synchronization with the telephone time tone. The second hand will start to move and the watch will start ticking away from the correct time.

#### **<When the second hand is moving at 10-second intervals (indicating that power is not being generated)>**

1. Pull the crown twice to the time correction position when the second hand reaches the 0 seconds position.
2. Turn the crown to set the time.
3. Return the crown to its original position in synchronization with the telephone time tone. The second hand will start to move and the watch will start ticking away from the correct time.

## Caution

### <If the stop position of the second hand shifts, and it does not stop at the 0 seconds position>

If the crown is pulled out to the time correction position when the second hand is at another position than the 0-second, 10-second, 20-second, 30-second, 40-second or 50-second position, or if the second hand does not stop at the 10-second interval movement stop positions due to the influence of static electricity or physical impacts, perform the following procedure to set the correct time again.

1. Pull the crown twice to the time correction position when the second hand is between 51 and 59 seconds.
2. Push the crown in a normal position. The second hand moves at 1-second intervals for 10 seconds only.
  - In the 10-second interval movement condition (non-power generating condition) only, 1-second interval movement will take place for 10 seconds after the crown is pressed in.
3. Pull the crown twice again to the time correction position when the second hand reaches the 0 seconds position.
  - Refer to <When the second hand is moving at 1-second intervals (generating electric power display) / 2-second intervals (insufficient recharging warning display) / 2-second hitch movement (time setting warning display)>, and reset the time.

### <Setting the Calendar>

1. Pull the crown once to the calendar correction position.
2. While turning the crown to the left, match with the date of the day.
  - Idle motion will result if the crown is turned to the right.
  - If the date is adjusted while the time indication is between 9 PM and 1 AM, the date may not change even on the following day.
  - This watch employs a 31-day dating system. For months with only 30 days and February, the crown must be operated to correct the date on the first of the following month.
3. Return the crown to the normal position.

## 4. Characteristic Functions

The display of this watch changes following the activation of the warning functions described below when the watch is insufficiently charged.

### [Normal Time Display]

1-second interval movement or  
10-second interval movement



When charging becomes  
insufficient

When the watch is  
charged

### [Insufficient Recharging Warning Display]



### [Time Setting Warning Function]

If insufficient charging further continues



When the time is set  
while charging is still  
insufficient

When the watch is charged by  
wearing on the wrist, the watch  
hands begin to move.

Stop

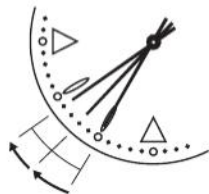
When the time is set when the watch is fully charged

## 5. Warning Functions

The display of this watch changes when the warning functions described below are activated as a result of the watch being insufficiently charged. The watch does not change to 10-second interval movement even if power is not generated while any of these functions are activated.

### [Insufficient Recharging Warning Function]

When the second hand is moving at 2-second intervals (moves two gradations at a time every 2 seconds), this indicates that the watch is insufficiently charged.



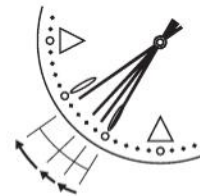
2-second interval movement

Although the watch continues to run normally at this time, if roughly 11 days elapse after 2-second interval movement has begun, the watch stops running. When this happens, charge the watch by wearing it on your wrist until it returns to normal 1-second interval movement.

If charging is discontinued soon after the watch returns to 1-second interval movement, it will again return to 2-second interval movement several minutes later.

### [Time Setting Warning Function]

Although the watch hands begin to move when the watch has been recharged after it has stopped as a result of being insufficiently charged, since the time is incorrect, the second hand moves in a 2-second hitch movement (moves irregularly once every 2 seconds) indicating that the time is incorrect.



2-second hitch movement

When this happens, charge the watch by wearing it on your wrist after resetting it to the correct time. When the time is set, 2-second hitch movement is canceled, and the watch returns to the normal time display or the insufficient recharging warning function.

In the case of 2-second hitch movement, change the watch until it returns to 1-second interval movements.

## 6. Secondary Battery

### **WARNING** Handling of the Secondary Battery

Never attempt to remove the secondary battery from the watch. When the secondary battery must unavoidably be removed, store in a location out of the reach of small children to prevent accidental swallowing. If the secondary battery should happen to be swallowed, please consult a physician immediately and seek medical assistance.

### **WARNING** Only Use the Specified Battery

Never use a battery other than the secondary battery specified for use in this watch. Although the watch is constructed so as not to operate when a different type of battery is installed in the watch, if another type of battery such as a silver battery is forcibly used and the watch should happen to be charged using that battery, there is the risk of the battery rupturing resulting in damage to the watch and personal injury. Always make sure to only use the specified battery when replacing the secondary battery of this watch.

### **[When Not Using for a Long Period of Time]**

It is recommended to store the watch with the crown pulled out to the time correction position to save on electrical power. This makes it possible to suppress

current consumption and extend the duration of watch usage without charging. When using the watch after storing, make sure to first reset the time after fully charging and returning to 1-second interval movement.

## 7. Precautions

### **CAUTION** Water-Resistance Performance

There are several types of water-resistant watches, as shown in the following table. For correct use within the design limits of the watch, confirm the level of water-resistance of your watch, as indicated on the dial and case, and consult the table.

- Water-resistance for daily use (to 3 atmospheres): This type of watch is water-resistant to minor exposure to water. For example, you may wear the watch while washing your face; however, it is not designed for use underwater.
- Upgraded water-resistance for daily use (to 5 atmospheres): This type of watch is water-resistant to moderate exposure to water. You may wear the watch while swimming; however, it is not designed for use while skin diving.
- Upgraded water-resistance for daily use (to 10/20 atmospheres): This type of watch may be used for skin diving; however, it is not designed for scuba or saturated diving using helium gas.

(The unit “bar” is roughly equal to 1 atmosphere.)

|                                    |                                                   |                                      | Examples of Use                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|------------------------------------|---------------------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Indication                         |                                                   | Specification                        |  |  |  |  |  |
| Dial                               | Case (caseback)                                   |                                      | Minor exposure to water (washing face, rain, etc.)                                | Moderate exposure to water (washing, kitchen work, swimming, etc.)                  | Marine sports (skin diving)                                                         | Scuba diving (with air tank)                                                        | Operation of the crown with moisture visible                                        |
| WATER RESIST or no indication      | WATER RESIST(ANT)                                 | Water-resistant to 3 atmospheres     | OK                                                                                | NO                                                                                  | NO                                                                                  | NO                                                                                  | NO                                                                                  |
| WR 50 or WATER RESIST 50           | WATER RESIST(ANT) 5 bar or WATER RESIST (ANT)     | Water-resistant to 5 atmospheres     | OK                                                                                | OK                                                                                  | NO                                                                                  | NO                                                                                  | NO                                                                                  |
| WR 100/200 or WATER RESIST 100/200 | WATER RESIST(ANT) 10/20 bar or WATER RESIST (ANT) | Water-resistant to 10/20 atmospheres | OK                                                                                | OK                                                                                  | OK                                                                                  | NO                                                                                  | NO                                                                                  |

\* WATER RESIST(ANT) xx bar may also be indicated as W.R. xx bar.

## CAUTION

- Be sure to use the watch with the crown pressed in (normal position). If your watch has a screw-type crown, be sure to tighten the crown completely.
- Do NOT operate the crown with wet fingers or when the watch is wet. Water may enter the watch and compromise water-resistance.
- If the watch is used in seawater, rinse with fresh water afterward and wipe with a dry cloth.
- If moisture has entered the watch, or if the inside of the crystal is fogged up and does not become clear within a day, immediately take the watch to your dealer or Citizen Service Center for repair. Leaving the watch in such a state will allow corrosion to form inside.
- If seawater enters the watch, place the watch in a box or plastic bag and immediately take it in for repair. Otherwise, pressure inside the watch will increase, and parts (crystal, crown, etc.) may come off.

## CAUTION      **Keep Your Watch Clean**

- Leaving dust and dirt deposited between the case and crown may result in difficulty in pulling the crown out. Rotate the crown while in its normal position, from time to time, to loosen dust and dirt and then brush it off.
- Dust and dirt tend to be deposited in gaps in the back of the case or band. Deposited dust and dirt may cause corrosion and soil your clothing. Clean the watch occasionally.

## Cleaning the Watch

- Use a soft cloth to wipe off dirt, perspiration and water from the case and crystal.
  - Use a soft, dry cloth to wipe off perspiration and dirt from the leather band.
  - To clean a metal, plastic, or rubber watchband, wash away dirt with mild soap and water. Use a soft brush to remove dust and dirt jammed in the gaps in the metal band. If your watch is not water-resistant, take it to your dealer.
- NOTE: Avoid using solvents (thinner, benzine, etc.), as they may mar the finish.

## CAUTION      **Operating Environment**

- Use the watch within the operating-temperature range specified in the instruction manual.  
Using the watch where temperatures are outside the specified range, may result in deterioration of functions or even stoppage of the watch.
- Do NOT use the watch in places where it is exposed to high temperature, such as in a sauna.  
Doing so may result in a skin burn.
- Do NOT leave the watch in a place where it is exposed to high temperature, such as the glove compartment or dash-board of a car.  
Doing so may result in deterioration of the watch, such as deformation of plastic parts.

- Do NOT place the watch close to a magnet.  
Timekeeping will become inaccurate if you place the watch close to magnetic health equipment such as a magnetic necklace or a magnetic latch of a refrigerator door or handbag clasp or the earphone of a mobile phone. If this has occurred, move the watch away from the magnet and reset the time.
- Do NOT place the watch close to household appliances that generate static electricity.  
Timekeeping may become inaccurate if the watch is exposed to strong static electricity, such as is emitted from a TV screen.
- Do NOT subject the watch to a strong shock such as dropping it onto a hard floor.
- Avoid using the watch in an environment where it may be exposed to chemicals or corrosive gases.  
If solvents, such as thinner and benzene, or substances containing such solvents come in contact with the watch, discoloration, melting, cracking, etc. may result. If the watch comes in contact with mercury used in thermometers, the case, band or other parts may become discolored.

## 8. Specifications

1. **Caliber No.:** F910
2. **Type:** Thermoelectric power generation quartz watch
3. **Accuracy:** Within  $\pm 15$  seconds per month on average  
(When worn at normal temperatures of  $+5^{\circ}\text{C}$  to  $+35^{\circ}\text{C}/41^{\circ}\text{F}$  to  $95^{\circ}\text{F}$ )
4. **Operating Temperature Range :**  $-10^{\circ}\text{C}$  to  $+60^{\circ}\text{C}/14^{\circ}\text{F}$  to  $140^{\circ}\text{F}$
5. **Display Functions:** Time (Hours, Minutes, Seconds)  
Calendar
6. **Additional Functions:**
  - Thermoelectric Generation Function
  - Insufficient Recharging Warning Function
  - Time Setting Warning Function
  - Overcharging Prevention Function
7. **Continuous Operating Time:**
  - Fully charged to stopping: Approx. 6 months
  - 2-second interval movement to stopping: Approx. 11 days
8. **Battery Used:** Secondary battery, 1pc.

\* Specifications are subject to change without notice.