

RAIDER

BY ROCKWELL

THE
**GAME
FACE**

HEART RATE MONITOR

USER
MANUAL



1.0 Introduction

Thank you for your purchase. This watch includes 4 function modes: Current Time, Heart Rate Chronograph, Memory and Timer.

With this watch, you can get ECG accurate heart rate readings with the use of a chest strap!

To have a continuous heart rate readings, just put on the chest strap and switched to the Heart rate Chronograph mode. Also, the exercise time and calories consumption for either type of information will be calculated.

WARNING !

- DO NOT use this Watch for commercial or professional purposes.
- Make sure that you fully understand the functions and limitations of this watch before using it.
- This Watch is a supplementary device for measuring heart rate; it is NOT a substitute for medical devices. You should periodically compare the heart rate readings acquired by this watch with the readings from a doctor.
- Consult a doctor or trainer before setting your Upper and Lower heart rate limits.

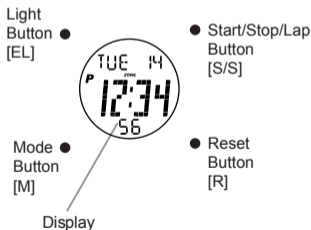
2.0 Buttons Operation of the Watch

Power saving mode

This watch may arrive been set to power saving mode. If the display is blank, simply press any button to activate it.

To conserve the battery during a long period of inactivity, you can switch on the power saving mode by holding the "reset" buttons for 5 seconds.

Note: entering power saving mode will only turn off the screen and will not reset the watch or any of its data. The watch continues to function regularly in power saving mode.



3.0 Buttons Operation Summary

Mode Button [M]

- Press to select one of the function modes
- In function mode: Hold to select the setting display
- In any setting display: Press to choose between different settings.
- Press and hold the button to exit the setting sequence.

Start/Stop/Lap Button [S/S]

- In Current Time Mode: Press to show Alarm Time and Hold to enter the setting of Daily Alarm Mode
- In Heart Rate Chronograph Mode: Press to start the counting or take Laps, Hold to stop counting.
- In Timer Mode: Press to start or stop counting.
- In setting displays: Press to change the settings.

Reset Button [R]

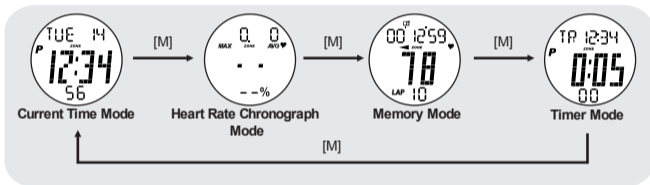
- In Heart Rate Chronograph Mode: Press to select sub-function modes. When the counting is stopped, Hold to reset display to zero
- In Timer Mode (Stop Counting): Hold to reset the timer to target time
- In setting displays: press to change the settings.

Light Button [EL]

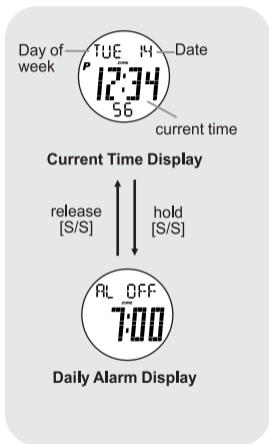
- In any mode/display, press to turn ON the EL back light for about 3 seconds.

Note: The button operations are summarized above, for detailed operating instructions, please read the following chapters.

4.0 Major Function Modes



5.0 Current Time Mode



Current Time Mode

- Current Time Mode includes two functional displays:
 - 1) Current Time Display
 - 2) Daily Alarm Display

Current Time Display

- The day of week and date exhibit in the 1st row of display.
- The current time (hour, minute, second) exhibits in the 2nd row of display.

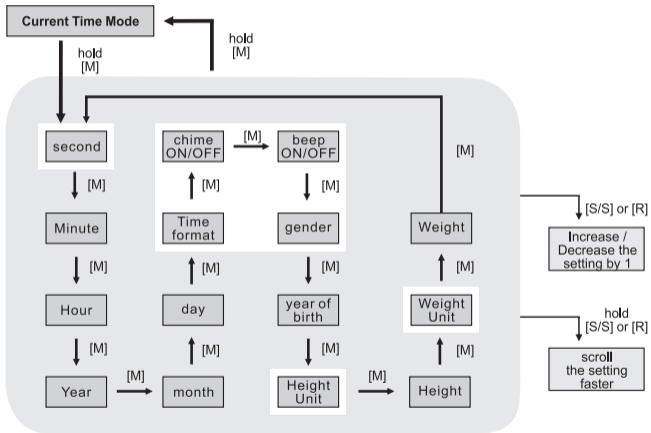
Daily Alarm Display

- The preset daily alarm time (hours, minutes) exhibits on the display.

To Select between the Current Time Display and Daily Alarm Display

- Press and hold the [S/S] button to show the Daily Alarm Display.
- When you release the [S/S.] button within 2 seconds, it will go back to the Current Time Display.
- If you hold it more than 2 seconds, it will go to alarm setting display.

5.1 Current Time Mode - Setting Sequence



5.1 Current Time Mode - Setting Sequence

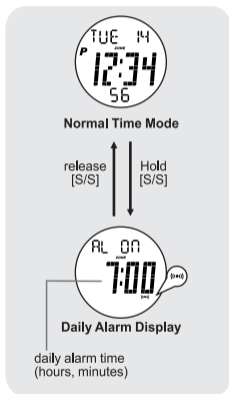
To Set the Current Time Mode

- To set the current time, date, and other settings, press and hold the [M] button for about 2 seconds to select the setting display (the second digits will start flashing).

The Setting Sequence

- When the second digits start flashing, press the [M] button to move the flashing following the setting sequence diagram in the previous page or press the [S/S] or [R] button to reset the second digits to zero.
- When one of the settings (minute, hour, year, month, day, '**BIRTH**'-birth year, '**HGT**'-height, '**WGT**'-weight) is flashing, press the [S/S] or [R] button to scroll through the setting (hold the button down to scroll the setting at a faster pace).
- When the '**12Hr**' or '**24Hr**' icon is flashing, press the [S/S] or [R] button to switch between '**12Hr**' (12 hour format) and '**24Hr**' (24 hour format).
- When the hourly chime (**CHIME**) or the beep tone (**BEEP**) '**on**' or '**off**' icon is flashing, press the [S/S] or [R] button to turn it ON ('**on**') or OFF ('**off**'). And when the hourly chime is ON, an indicator '🔔' will appear and the watch will beep once every hour.
- When the Gender '**F**' or '**M**' icon is flashing, press the [S/S] or [R] button to switch between '**F**' (Female) and '**M**' (Male).
- When the Height Unit '**In**' or '**CM**' icon is flashing, press the [S/S] or [R] button to switch between '**In**' (Inch) and '**CM**' (Centimeter).
- When the Weight Unit '**kG**' or '**LB**' icon is flashing, press the [S/S] or [R] button to switch between '**kG**' (Kilogram) and '**LB**' (Pound).
- When the setting is completed, press and hold the [M] button for about 2 seconds to exit the setting sequence. The setting display will return to Current Time Mode automatically if NO button is pressed for about 1 minute.

5.2 Current Time Mode - Daily Alarm



Daily Alarm Display

- In the Daily Alarm Display, Alarm Time (hours, minutes) appears in the 2 row of the display.

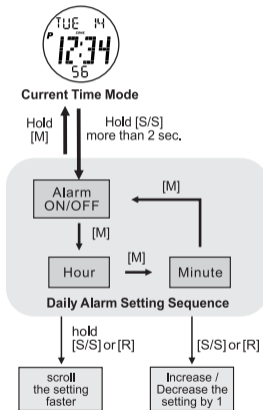
Daily Alarm ON and OFF

- When the Daily Alarm Indicator ' **(●)** ' appears (which means the daily alarm is ON), the watch starts beeping at the alarm time.

Daily Alarm Sound

- The alarm beeps for 1 minute when the daily alarm function is turned ON and it reaches the pre-set alarm time.
- You can stop the beeping by pressing any button.

5.3 Current Time Mode - Setting the Daily Alarm



To Set the Daily Alarm Function

- In the Current Time Mode: Press and hold the [S/S] button for more than 2 seconds to enter the alarm setting display (the 'on' or 'off' will start flashing).

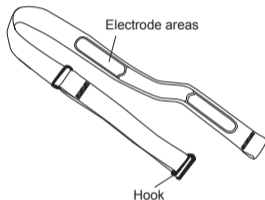
The Setting Sequence

- Press the [M] button to select among Alarm ON/OFF, hour and minute settings.
- When the 'on' or 'off' flashes on the display, press the [S/S] or [R] button to turn ON or OFF the alarm.
- When the 'hour' or 'minute' digit flashes on the display, press the [S/S] or [R] button to scroll through the setting (hold down the button to scroll the setting at a faster pace).
- Press and hold the [M] button for about 2 seconds to exit the setting sequence.
- The setting display will return to Current Time Mode automatically if NO button is pressed for about 1 minute.

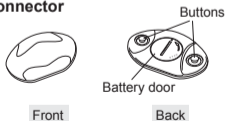
6.0 Heart Rate Measuring - Sensors Configurations

Naming of the parts:

1 Chest Strap



2 Connector



This product includes 2 parts:

Chest Strap: Goes around the body

Connector: To send the heart rate signal to the receiving device.

Electrode areas: To detect heart rate.

Hook: To fix the strap on user's chest

Buttons: To attach the connector to the strap

Battery door: To cover the battery compartment

Operating temperature : -10°C to $+50^{\circ}\text{C}$

This product is compliant with Directives 1999/5/EC.

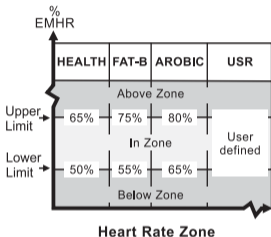
6.1 Heart Rate Measuring - Precautions and Tips

- In exercise or sports, your heart naturally speeds up pumping blood in your body in accordance with your increased energy level. This watch can calculate that increase expressed as the number of beats per minute (bpm) to determine a safe target heart rate for an individual.

PRECAUTIONS/TIPS

1. There are 2 contacts located on the back of the chest strap. The sensors must make firm contact with the user's skin during heart rate measurement.
2. DO NOT take heart rate measurement when diving or under water.
3. Clean the back of the chest strap occasionally by applying a few drops of water and wipe it dry with a paper towel. It can help remove any residual grease.
4. DO NOT use hand cream; it will insulate the signal between the skin and the sensors.
5. Clean skin around chest area with soap and water for a better signal transmission.
6. For those with extremely dry skin, moistening the skin with tap water or applying a conductive gel may help.
7. Adjust the Chest Strap with the supplied elastic band until it holds on your chest firmly to avoid loosening when doing exercise.
8. For best results, maintain a natural gait while moving. Jerky or unnatural movement will create muscle noise, and will interfere with the sensor.

6.2 Heart Rate Measuring - Heart Rate Zone



What is Heart Rate Zone

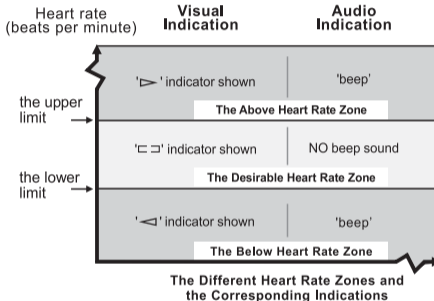
- Some particular training/exercise objectives like 'aerobics', 'fat burn' or 'cardo' require the trainee/exerciser to maintain his/her heart rate (exercise pace) within one particular heart rate zone during the exercise.

WARNING: Consult a doctor or trainer prior to setting the heart rate alert zone for a serious Cardio-fitness training.

How to Select a Zone (for Heart Rate Zone Alert)

- This Watch includes three pre-defined heart rate zones ("HEALTH", "FAT-B" and "AEROBIC") and one user-defined heart rate zone ("USR") for selection.
- The upper and lower limits of these Zones are shown in the adjacent diagram. Check chapter 6.5 for the details on how to select a Zone.

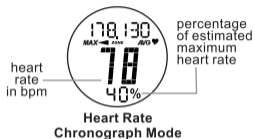
6.2.1 Heart Rate Measuring - Heart Rate Zone Alert



Note:

- When a user taking a heart rate measurement, various visual indications will be displayed according to his/her heart rate and the pre-set limits. Besides, a single beep will sound to alert the user when his or her heart rate is out of the preset zone.
- Please refer to chapter 6.5 for details on how to turn ON/OFF the Zone Alert.

6.2.2 Heart Rate Measuring - About EMHR and %EMHR



Estimated Maximum Heart Rate (EMHR):

- EMHR = 220 - user age.
- Example: What is Tom's EMHR at the age of 27?
- His EMHR = 220-27 = 193.

NOTE: This Watch can calculate the user's EMHR with the age up to 99.

Percentage of Estimated Maximum Heart Rate (%EMHR):

- %EMHR = Acquired heart rate / EMHR X 100%
- Example: What is Tom's %EMHR if he has acquired a heart rate of 78.
- %EMHR=78/193 X 100% = 40%

- During exercise or sports, your heart naturally speeds up pumping blood in your body in accordance with your increased energy level.
- The Heart Rate Chronograph Mode and Instant Heart Rate Mode show the current heart rate in term of:
 - Heart Rate (e.g 78) : The number of heart beats per minute (bpm), and
 - Percentage of Estimated Maximum Heart Rate (e.g 40%): The percentage of the acquired heart rate with respect to one's estimated maximum heart rate.

Percentage of Estimated Maximum Heart Rate

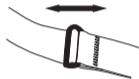
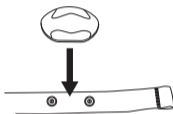
- It is a useful figure for analysing the cardio- fitness of a person.
- It can be used to define a heart rate zone for cardio-fitness training.
- Consult your doctor for more information on the implications of Percentage of Estimated Maximum Heart Rate.

NOTE: The user **MUST** input his/her age and gender into the Watch before using this function as the pre-set values do not fit the user's personal information. The result/reading may not be relevant. Check chapter 5.1 for more details on age and gender settings.

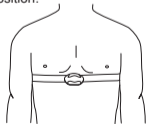
6.3 Heart Rate Measuring - Wearing the chest strap

Wear the Heart Rate Sensor:

- 1 Moisten the electrode areas of the strap.
- 2 Attach the connector to the strap.
- 3 Adjust the strap length to fit tightly but comfortably.



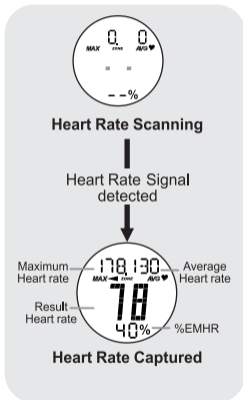
- 4 Tie the strap around your chest just below the chest muscles, and attach the hook to the other end of the strap.
- 5 Check that the moist electrode areas are firmly against your skin and that the logo of the connector is in a central and upright position.



NOTE:

Detach the connector from the strap and rinse the strap under running water after every use. Sweat and moisture may keep the electrodes wet and the transmitter activated. This will reduce the transmitter battery life.

6.3.1 Heart Rate Measuring - Chest-Strap Measurement



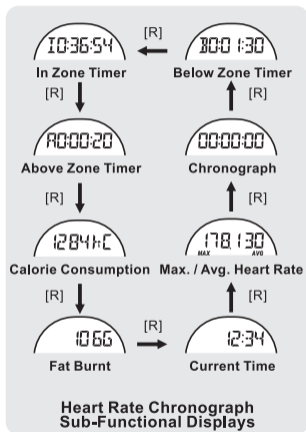
Measuring Heart Rate by the Chest Strap

- First, wear the chest strap following the instruction in chapter 6.3.
- Go to the “**Heart Rate Chronograph Mode**” and the watch will start measuring automatically.
- When the heart rate signal is detected, the heart rate acquired will be exhibited on the screen. The Percentage of Estimated Maximum Heart Rate (%EMHR) will also be exhibited on the right.
- The Maximum heart rate and Average heart rate during measurement will also be shown in the 1st row.

NOTE:

- Holding the [R] button in the Heart Rate Chronograph Mode will reset all the calculations and records stored in the watch, including Chronograph, Zone Timers, Fat Burnt and Calorie consumption.

6.4 Heart Rate Measuring - Heart Rate Chronograph Mode



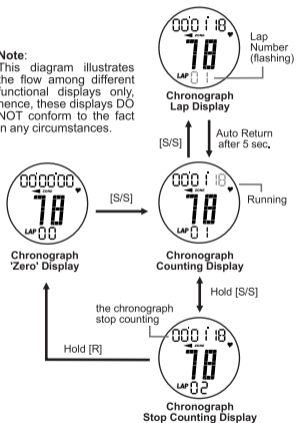
Heart Rate Chronograph Mode and the Sub-Functional Displays

- In the Heart Rate Chronograph Mode, there are 8 different displays for showing the exercise information. They are:
 - Maximum / Average Heart Rate Display,
 - Chronograph Display,
 - Below Zone Timer Display,
 - In Zone Timer Display,
 - Above Zone Timer Display,
 - Calorie Consumption Display,
 - Fat Burnt Display and,
 - Current Time Display.
- Press [R] to scroll through different Sub-Functional Displays from the top row of the display.

6.4.1 Heart Rate Measuring - Chronograph Display

Note:

This diagram illustrates the flow among different functional displays only, hence, these displays DO NOT conform to the fact in any circumstances.



To Use the Chronograph

- In 'Zero' Display, press the [S/S] button once to start the counting. When it is counting, hold the [S/S] button to stop the counting, and the accumulative elapsed time will appear.
- Press the [S/S] button once to take a Lap Record.

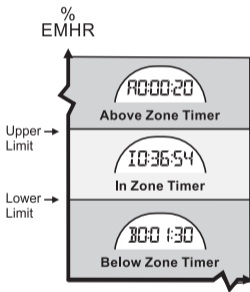
To Reset the Chronograph

- When the chronograph is stopped, hold the [R] button to reset the chronograph (ready for a new counting).

NOTE

- While taking Lap Time, the average heart rate for the Lap is also recorded.
- When the Chronograph is reset, the records will also be reset.

6.4.2 Heart Rate Measuring - Zone Timer Display



Heart Rate Zone Timer

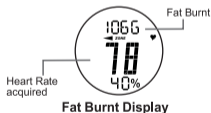
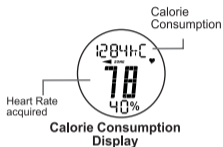
- This Watch provides 3 Heart Rate Zone Timers: In Zone Timer, Above Zone Timer and Below Zone Timer, all of which can count the time of the user's heart rate in or out of the Heart Rate Zone.

NOTE: The Heart Rate Zone Timer that corresponds with the current heart rate will start counting automatically when the Heart Rate is detected in the Heart Rate Chronograph Mode. To stop the counting, either take off the chest strap or exit the Heart Rate Chronograph Mode.

For example, "FAT-B" (55% to 75%EMHR) is set for the Heart Rate Zone Alert, the Below Zone Exercise Timer will start counting automatically if the current heart rate is fall into the 'below' zone, like 40% of EMHR. On the contrary, when the EMHR is over 75%, the Above Zone Timer will start counting automatically.

- Press [R] to view the different timers according to the sequence in chapter 6.4.
- These readings will be updated to the Heart Rate Chronograph Mode display all the time during the exercise.

6.4.3 Heart Rate Measuring - Calorie and Fat Display



Calorie Consumption

- By calculating the calorie consumption, we can have a brief image of the quality of the exercise and keeping our body fit.

Fat Burnt

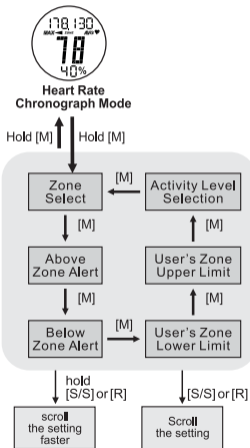
- Fat is something that stores energy for our body use.
- To keep our body fit and healthy, we need to keep a habit of doing exercise to burn extra fat stored in our body.

Calculation on Calorie and Fat

- This watch can calculate the Calorie Consumption and Fat Burnt during exercise according to the user's age, gender, heart rate and the activity level of exercise.
- This information can be reviewed real time while measuring heart rate. Just press the [R] button in Heart Rate Chronograph Mode according to the diagram in chapter 6.4.
- For the settings of activity level, age and gender, please refer to chapter 6.5.

NOTE: The Calorie Consumption and Fat Burnt counters will start counting automatically when the Heart Rate is detected in the Heart Rate Chronograph Mode. To stop the counting, either take off the chest strap or exit the Heart Rate Chronograph Mode.

6.5 Heart Rate Measuring - Zone Setting Sequence



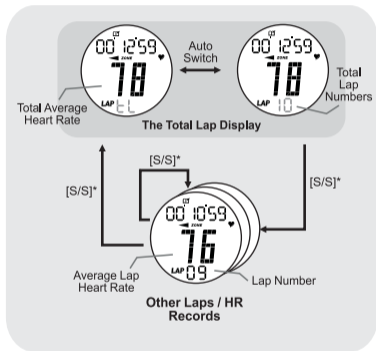
To Set the Heart Rate Zone

- In the Heart Rate Chronograph Mode: Press and hold the [M] button to enter the Zone setting display (the 1st row will start flashing).

The Setting Sequence

- Press the [M] button to select different settings following the sequence of the adjacent diagram.
- When the '**USR**', '**HEALTH**', '**FAT-B**' or '**AROBIC**' flashes on the display, press the [S/S] or [R] button to select target Heart Rate Zone. (For different Heart Rate Zone details, please refer to chapter 6.2)
- When the '**on**' or '- -' flashes on the display, press the [S/S] or [R] button to turn ON or OFF the Zone Alert. If any of the Zone Alert is ON, '**ZONE**' icon will be shown.
- When the digits flash on the display, press the [S/S] or [R] button to scroll the Zone Limit setting (Hold down to scroll at a faster speed and the corresponding %EMHR will be calculated on the right).
- When the '**LOW**', '**MEDIUM**' or '**HIGH**' flashes on the display, press the [S/S] or [R] button to select activity level (Low, Medium or High) for the exercise.
- Press and hold the [M] button for about 2 seconds to exit the setting sequence.
- The setting display will return to the Heart Rate Chronograph Mode automatically if NO button is pressed for about 1 minute.

7.0 Memory Mode



*Press [R] to review in reverse direction

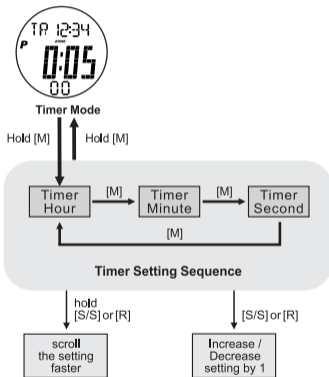
Memory Mode

- This watch can record the Lap Time and Heart Rate during exercise for the user to review at a later time.
- The Lap Time exhibits in the 1st row of display.
- The Heart Rate Measured exhibits on the left hand side of the 2nd row of display.
- The Lap Number exhibits on the right hand side of the 2nd row of display.

To Recall Records

- In the Memory Mode, press [S/S] or [R] button to select which record you want to check.

8.0 Timer Mode - Setting Sequence



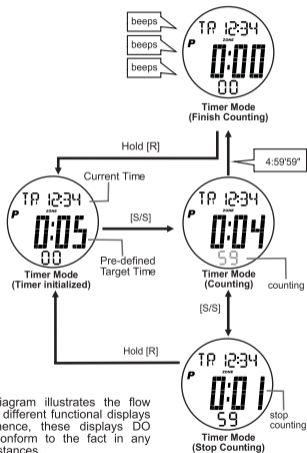
To Set the Timer Mode

- To set the pre-defined target time in the timer mode, press and hold the [M] button for about 2 seconds (the '**Hour**' digits will start flashing)

The Setting Sequence

- When the '**Hour**' digits start flashing, press the [M] button to move the flash following the sequence of the adjacent diagram.
- When one of the settings (hour, minute, second) is flashing, press the [S/S] or [R] button to scroll through the setting (hold down the button to scroll the setting at a faster pace).
- Press and hold the [M] button for about 2 seconds to exit the setting sequence.
- The setting display will return to Timer Mode automatically if NO button is pressed for about 1 minute.

8.1 Timer Mode - Using Timer



Note:

This diagram illustrates the flow among different functional displays only, hence, these displays DO NOT conform to the fact in any circumstances.

To Use the Timer Mode

- Once a target time has been set (for example 3 hours), press the [S/S] button once to start the countdown. The countdown time will be displayed continuously throughout the countdown.
- To stop counting, press the [S/S] button once.

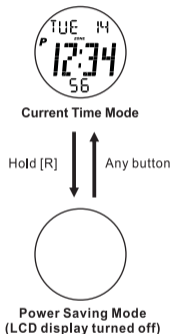
To Reload the Timer

- Hold the [R] button to reload the timer to the preset target time when the counting is stopped.
- To start the counting at a target time, set a new value for the pre-defined target time. Check the previous chapter 8.0 for more details on how to set the Target Time.

Timer Alarm Sound

- When the timer reaches the last 10 seconds, the watch will beep once for each second left. When it counts to zero, a double-beep sound will be heard for 15 seconds
- You can stop the beeping by pressing any button.

9.0 Power Saving Mode



Power Saving Mode

- This Watch has a Power Saving Function which can turn off the LCD display so that the battery can last longer.
- While in the Power Saving Mode, the watch function is still worked normally. (i.e. The timekeeping function is still running during Power Saving Mode.)

How to enter/exit the Power Saving Mode

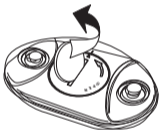
- To enter the Power Saving Mode, hold down the [R] button in Time Mode for about 5 seconds and the LCD display will be turned off.
- Press any key during Power Saving Mode will exit the mode and the LCD display will be resumed.

10.0 Battery Replacement for Cheat Strap

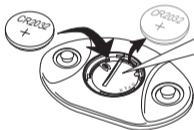
Batteries:

All connectors have user changeable batteries. To change the battery yourself, follow the instructions below, and see the markings on the connector.

- 1 Turn the cover counter-clockwise with a coin gently until it pops out.



- 2 Remove the exhausted battery and insert a new one (CR2032) with (-) side against the metal contact.



Make sure the battery is placed under the golden slot.

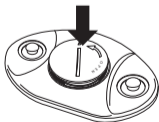
2a



2b



- 3 Press the cover back into the connector.



- 4 Turn the cover clockwise with the coin again until the little arrow pointed to the dot.



NOTE: Keep batteries away from children. If swallowed, contact a doctor immediately.

CAUTION: Risk of explosion if battery is replaced by an incorrect type.

11.0 Potential Causes for NO Heart Rate Reading or Long Response Time

1) Cause: Dry Skin.

Solution: Apply conductive gel or saliva thoroughly to the chest area. Even water will help if conductive gel is not available.

2) Cause: Not firmly contact with the user's skin.

Solution: Make sure the chest strap is properly placed over the chest.

3) Cause: Muscle tremors caused by holding too hard.

Solution: Make sure the chest strap is properly secured over the chest.

4) Cause: Dead skin on chest.

Solution: Usually rubbing your skin with a towel will help.

5) Cause: A thin layer of body grease insulates the ECG signal which prevents the Chest Strap from picking up your ECG.

Solution: Wipe chest / wrist and the back of Chest Strap with a tissue or soft towel.

6) Cause: Hairy skin.

Solution: Apply conductive gel to the chest area.

7) Cause: Irregular heartbeats.

Solution: N/A It is difficult to consistently pick up a reading for those with irregular heart beats. Inconsistent response times are expected for those with arrhythmia.

8) Cause: Battery Low.

Solution: It might be due to the low battery level of the Chest Strap/watch. Replace the battery and try again.

9) Cause: Interference of other RF devices (Chest-Strap Measurement)

Solution: Depart from the place where the RF source potentially exists.

12.0 Specifications

Current Time Mode

- Time System: am, pm, hour, minute, second
- Time Format: 12-hour or 24-hour format
- Calendar: date and day of week display
(Auto-Calendar function for day of week and leap year)

Daily Alarm

- Daily alarm and hourly chime
- Alarm Sound: 1 minute

Timer Mode

- Resolution: 1 second
- Measuring Range: 9 hours 59 minutes 59 seconds
- Timer Sounds: will beep once per second for the last 10 seconds and beep for 15 seconds when counting to zero.

Memory Mode

- Lap Recall / Total Lap Time Recall
- Lap Average Heart Rate Recall
- Total Average Heart Rate Recall

Back Light

- Back Light Type: Electro-Luminescent (EL) back light

Heart Rate Chronograph Mode

Chest Strap Heart Rate Measurement

- Chest Strap Measurement
- Range: 40 to 240 bpm
- Heart Rate Zone Alert
- 4 Heart Rate Zones - Selectable
- 3 Activity Levels - Selectable

Chronograph

- Resolution: 1/100 second
- Measuring Range: 9 hours 59 minutes 59.99 seconds
- Number of Laps: Maximum 25 Laps

Heart Rate Zone Timer

- Resolution: 1 second
- Measuring Range: 9 hours 59 minutes 59 seconds

Calorie Consumption

- Range: 0 to 9999 kilo-calorie

Fat Burnt

- Range: 0 to 9999 gram



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RoHS



CE