SOLUS®

TOUCH HEALTH & TOUCH FUN

LEISURE
860
USER MANUAL

SM-715.1

1.0 Introduction

Thank you for purchasing this watch. With this watch, you can get electrocardiogram heart rate without using a chest strap.

To get the most of your purchase, you are suggested to read this manual carefully and keep it in hand for later reference.

IMPORTANT Notes

1) Do not use this watch for commercial or professional purposes.

2) Make sure you have read this manual thoroughly and fully understood the functions and limitations of this watch before using it.

3) This watch is a supplementary device for measuring heart rate. It is not a substitute for medical devices. You should occasionally compare the heart rate reading acquired by this watch with the reading from your doctor.

4) Do not use heart rate measurement under water.

2.0 Care and Maintenance

In order to utilize the features of your watch, it is advisable to use the watch following the notes below:

1) This watch contains electronic components. Never attempt to open the case or remove the back cover.

2) Avoid exposing your watch under extreme conditions for an unreasonable period of time.

3) Keep the watch away from strong electric field and static electricity.

4) Avoid rough use or severe impacts on your watch.

5) Clean your watch occasionally with a soft moistened cloth only. Avoid using chemicals, especially soap as the waterproof gasket will corrode.

6) For PU straps, please wash them with mild soapy water only. Do not apply perfume or moisturizer around your wrist as the chemicals may erode them.

7) There may be discoloration for light colors and transparent straps after normal wear for some time. An original replacement on straps is possible to be re-ordered through an authorized service center.

8) Store the watch in a dry place when it is not in use.

9) In case there is any severe or persistent skin reaction, such as severe redness, itching, rash or hives, you should stop wearing this watch, and consult your doctor.

3.0 Precautions for Water Resistance & Battery

Water Resistance
Water damage may occur if the push buttons are pressed under water. Should water or condensation appear in the watch, please check the watch immediately, as corrosion of electronic parts can occur inside the case.

Battery Life
The battery in your SOLUS watch is estimated to last for 18 months, depending on frequency and use of certain features.

Battery Replacement
If the display dims or the EL backlight is dim, you are recommended to go to the authorized SOLUS service center for correct battery replacement in order to retain a valid warranty and avoid any damage on the water resistance function.

WARNING!
Always keep watch batteries away from children. If swallowed, contact a doctor immediately. Batteries contain chemical substances. They should be disposed of properly according to local regulations.

4.0 Specifications

Time Mode
- Hour, minute and second
- 12 / 24 hour format selectable

Calendar Mode
- Month, date and day of week
- Calendar range: 2000-2099
- Auto calculation of weekday
- M-D/D-M date format selectable

Daily Alarm Mode
- Daily Alarm: 1 daily alarm
- Alarm sound: 3 beeps for about 30 seconds

Chronograph Mode
- Resolution: 1/100 second up to 59 minutes, 59.99 seconds
- Counting range: 23 hours, 59 minutes, 59 seconds

Heart Rate Mode
- Manually On/Off control
- Measuring range: 40 to 240 Heart beats per minute (bpm)
- Audible Heart Rate Zone Alert

Others
- 3 hands analog movement

- 5 ATM water resistance

* Water-related usage for 5 ATM: Light spray perspiration, light rain, bathing, etc.

- Electro-luminescent backlight

* The illumination provided by the backlight may be hard to see when viewed under direct sunlight.

5.0 Design of the Watch

Light Button [EL]
Press to turn ON the EL backlight.

Digital Display
Please refer to chapter **6.0** for more details.

Mode Button [M]
Press to change modes.
Hold **[M]** to enter/exit the setting mode.
In setting display, press to select among different settings.
In Chronograph Mode, hold **[M]** to reset the chronograph.

Bezel Touch [HR1]
In Heart Rate Mode, hold down to display your heart beats per minute (bpm) and percentage of estimated maximum heart rate. (% EMHR)

Start/Stop button [S/S]
Press to start or stop chronograph running. In setting display, press to increase the setting value.

Crown
Pull and turn to set the analog time.
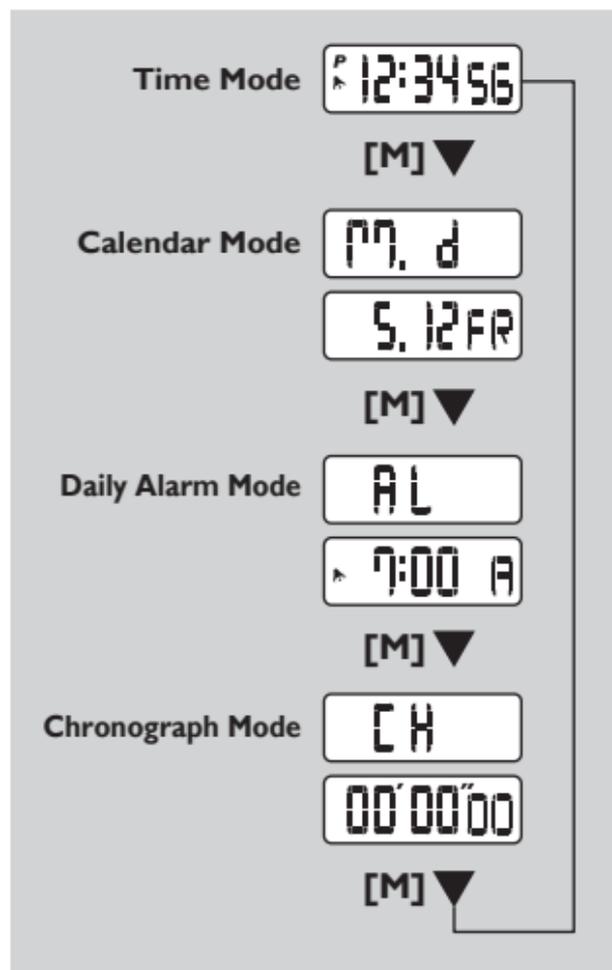
Heart Rate button [HR]
Press to enter Heart Rate Mode. In setting display, press to decrease the setting value.

Sensor 2 [HR2]
When you wear the watch, the sensor will be activated.

6.0 Functional Modes & Displays

Time Mode `12:3456`

[M] ▼

Calendar Mode `M. d`

`5. 12 FR`

[M] ▼

[HR] ► **HR**

`78 40`

Heart Rate Mode

Daily Alarm Mode `AL`

`7:00 A`

[M] ▼

Chronograph Mode `CH`

`00 00 00`

[M] ▼

7.0 Timekeeping

This watch features separate digital and analog timekeeping. The procedures for setting the digital time and analog time are different.

7.1 Setting the Analog Time

To set the analog time, gently pull the crown to the "click" position and turn it until the time is set correctly. Gently push the crown to resume normal operation.
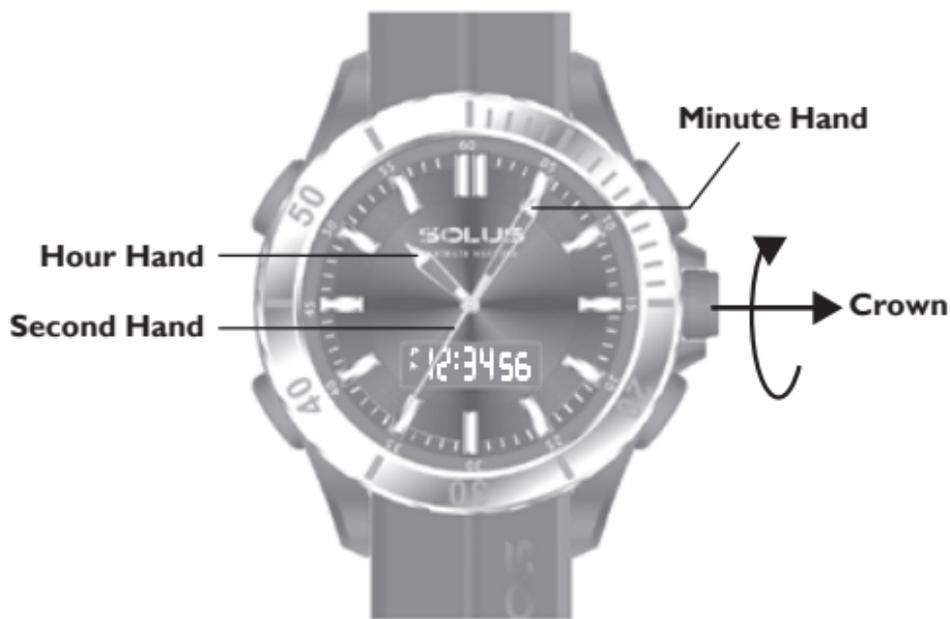
7.2 Setting the Digital Time and Personal Profile

```
P 12:3456
```
Time Mode

OR

```
5. 12FR
```
Calendar Mode
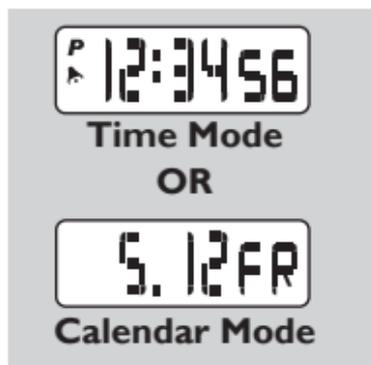
◀ Hold **[M]**

Hold **[M]** ▶

SECOND

◀**[M]** 12/24 HOUR   ◀**[M]** DAY
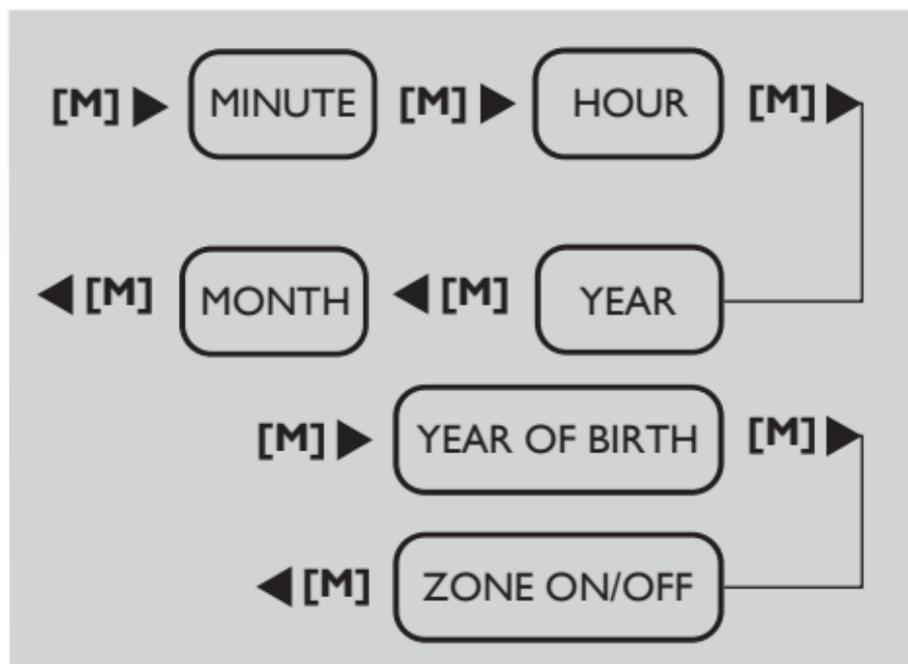
DATE FORMAT   **[M]**▶ BEEP ON/OFF

◀**[M]** UPPER LIMIT   ◀**[M]** LOWER LIMIT

Hold **[M]** to enter to the setting display, the display will start flashing. Press **[S/S]** or **[HR]** to adjust, then press **[M]** to confirm. Hold **[M]** anytime to exit the setting display. You can also set personal profile here. Please refer to chapter **11.0** for more details.

```
[M] ▶ ( MINUTE )  [M] ▶ ( HOUR )  [M] ▶

◀ [M] ( MONTH )  ◀ [M] ( YEAR )

              [M] ▶ ( YEAR OF BIRTH )  [M] ▶

◀ [M] ( ZONE ON/OFF )
```
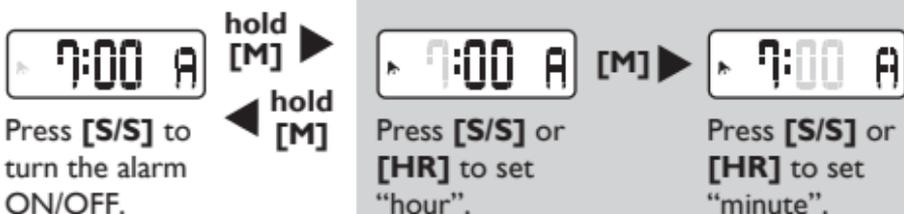
8.0 Power Saving Mode

During Time Mode, hold **[S/S]** for 5 seconds to enter Power Saving Mode. The LCD will be OFF.

Press any button to resume normal.

9.0 Setting the Daily Alarm

In Daily Alarm Mode, press **[S/S]** to turn ON/OFF the alarm function. Hold **[M]** to enter the setting display, the digits will start flashing. Press **[S/S]** or **[HR]** to adjust, then press **[M]** to confirm. Hold **[M]** anytime to exit. When the alarm function is on, " 🔔 " will appear. The watch will beep for 30 seconds at the preset alarm time.

`7:00 A`	**hold [M]** ▶
Press **[S/S]** to turn the alarm ON/OFF.	◀ **hold [M]**

`7:00 A` → **[M]** ▶ `7:00 A`

Press **[S/S]** or **[HR]** to set "hour".

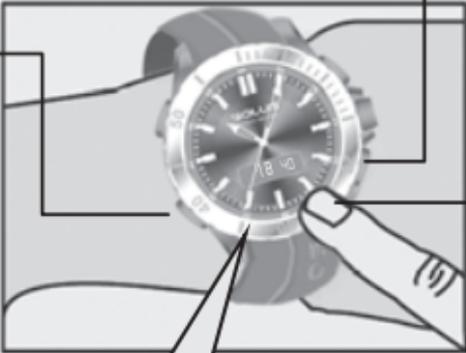Press **[S/S]** or **[HR]** to set "minute".

10.0 Heart Rate Mode - Display

Heart beats per minute (bpm)

Percentage of estimated maximum heart rate (%EMHR)

10.1 Heart Rate Mode - Measuring Heart Rate

1. Press **[HR]** in any mode to enter the Heart Rate Mode.

2. Make sure the sensor **[HR2]** at the back of the watch sits firmly on your skin.

3. Place your finger on the bezel touch sensor **[HR1]** and hold for a few seconds.

flashing segments

HR

4. Heart rate is sampling

getting the result of heart rate

beep

78 40

5. Result heart rate displayed in a few seconds

10.2 Potential Causes for No Heart Rate Reading or Long Response Time

1) **Cause:** Dry skin.
   Solution: Apply conductive gel or saliva thoroughly to fingers and the wrist area. (Even water will help if conductive gel is not available).

2) **Cause:** Fingers are not placed firmly over the sensors.
   Solution: Make sure fingers (not the tips) lay flat and firmly over the sensors and watch is placed securely on the wrist. Do not use the very tips of your fingers (e.g. visualize tip toeing with your fingertips). Fingertips do not allow for enough contact, therefore, electrocardiogram will not be picked up.

3) **Cause:** Muscle tremors, caused by:
   A) Pressing too hard on the sensors with fingertips. B) Person is in motion and hold the watch in an awkward manner.
   Solution: It is best to place your index finger on the "front" contact [HR1]. This will ensure good and consistent readings even while walking or jogging with arms swung naturally.

4) **Cause:** Dead skin on the wrist.
   Solution: Usually rubbing your skin with a towel will help.

5) **Cause:** A thin layer of body grease can insulate the electrocardiogram signal from the back sensor on the watch.
   Solution: Wipe the wrist and the back of watch [HR2] with a tissue or a soft towel.

6) **Cause:** Hairy arms.
   Solution: Apply conductive gel to the wrist area.

7) **Cause:** Irregular heart beats.
   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.
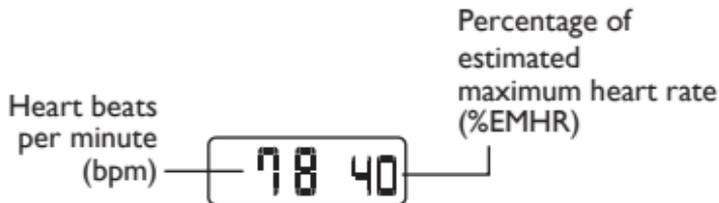
11.0 Heart Rate Measuring - Precautions & Tips

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

Precautions and tips

1. A heart rate sensor is located on the back of the watch. The back sensor must firmly contact with your skin during finger-touch heart rate measurement.
2. DO NOT take heart rate measurement when diving or under water.
3. DO NOT use hand cream; it will insulate the signal between the skin and the sensors.
4. Clean fingers with soap and water for better signal transmission.
5. DO NOT use heart rate function when the skin on the fingertips is dry and thick.
6. For those with extremely dry skin, moisten the skin with tap water or apply a conductive gel may help.
7. Hold the watch firmly when taking finger touch heart rate measurement in motion.
8. During the measurement, avoid any awkward motion. Awkward motion creates undesired muscle noise; hence an incorrect heart rate reading may be resulted.

11.1 Heart Rate Measuring - EMHR and %EMHR

Percentage of estimated maximum heart rate (%EMHR)

Heart beats per minute (bpm)

```
┌─────────┐
│ 78  40  │
└─────────┘
```

Heart Rate Mode

The Heart Rate Mode shows the current heart rate in terms of:

🖉 Heart Rate (e.g 78) : The number of heart beats per minute (bpm).

🖉 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 the heart rate zone of a cardio-fitness training.

🖉 Consult your doctor for more information on the implications of percentage of estimated maximum heart rate.

Estimated Maximum Heart Rate (EMHR):

🖉 EMHR = 220 - user age.

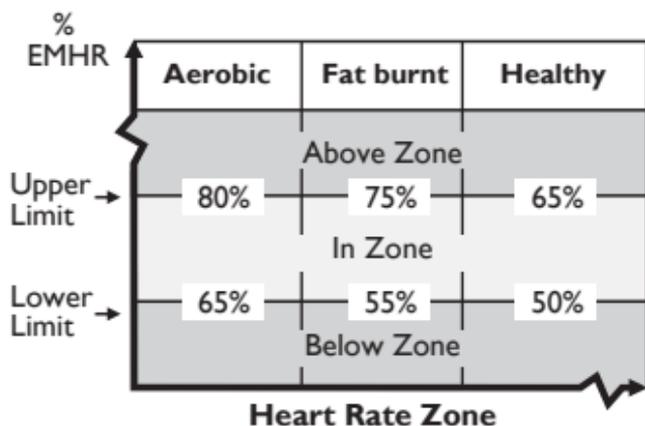🖉 Example: What is Tom's EMHR at his age of 27?

🖉 EMHR = 220 - 27 = 193.

NOTE: This watch can calculate the EMHR for users at 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%

NOTE: The user MUST input his/her age into the watch ahead, otherwise this figure is not correct. Please refer to chapter **7.2** for the details on age setting.

11.2 Heart Rate Measuring - Heart Rate Zone

% EMHR	Aerobic	Fat burnt	Healthy
	Above Zone		
Upper Limit →	80%	75%	65%
	In Zone		
Lower Limit →	65%	55%	50%
	Below Zone		

Heart Rate Zone

What is Heart Rate Zone?

The training heart rate zone is an optimum range that your heart rate values fall into during exercise. It depends upon your age, gender, fitness level, etc. You need to adjust the intensity of exercise to maintain your pulse (exercise pace) within a selected heart rate zone. The above chart shows the range of percentage of estimated maximum heart rate for different training/exercise objectives namely 'Aerobic', 'Fat burnt' and 'Healthy'.

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

How to Select your Suitable Heart Rate Zone?

In general, you may get the cardio-fitness training advices from those prestigious organizations website, for example:

- ✐ http://www.heart.org/HEARTORG/Conditions/
  CongenitalHeartDefects/
  CareTreatmentforCongenitalHeartDefects/Congenital-Heart-
  Defects-and-PhysicalActivity_UCM_307738_Article.jsp
  by American Heart Association.

- ✐ http://en.wikipedia.org/wiki/Heart_rate#Training_zones
  by Wikipedia.

After selecting your desirable Heart Rate Zone, you may set your Zone boundary values for a Heart Rate Zone Alert. Please refer to the next section for more details.

11.3 Heart Rate Measuring - Heart Rate Zone Alert

About the Heart Rate Alert Function

By setting an objective heart rate range, you can activate the heart rate alert function. This function helps to prevent the user from going over or under an objective heart rate.

In course of doing exercise or sports: When you take a heart rate measurement that is out of the preset desirable zone, this watch will alert you. Hence, you could render the appropriate actions such as increasing or decreasing the exercise intensity.

For example, some training sessions may require you to maintain your heart rate at a predefined zone (the desirable zone) to achieve training objectives. This watch can remind you whether your heart beat is out of the objective zone at any time.

Upper & Lower Limits of the Desirable Heart Rate Zone

The desirable heart rate zone is the realm that defined by an upper and a lower limit. These limits can be obtained by the following approaches:

1) Get the limits by consulting a doctor or trainer that the above zone and below zone limits can be set by you.

2) Calculate your desirable limits by using your age and the optimum percentage of estimated maximum heart rate (%EMHR)

    Lower Limit Heart Rate = (220 - age) x optimum %EMHR

    Example: What is Tom's (age 27) lower limit heart rate if he wants to keep his heart rate over an optimum %EMHR of 65%?

    Lower Limit Heart Rate = (220 - 27) x 65%

    $$= 125 \text{ bpm}$$

    Note: Apply similar calculation to the Upper Limit Heart Rate.

To set Zone Alert ON/OFF, upper and lower limit values of the **Desirable Heart Rate Zone**, please refer to chapter **7.2**.
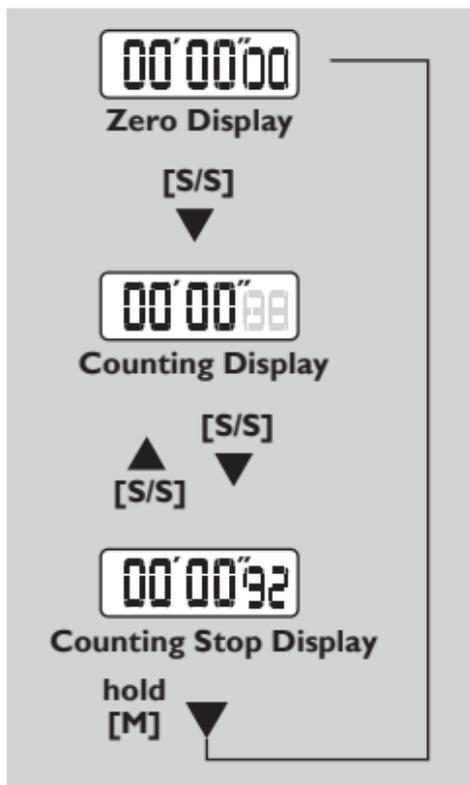
**Heart Rate Zone Alerts Indication
(when Zone Alert is 'ON')**

Heart rate
(beats per minute)

'bi bi bi'	
Above the Heart Rate Zone	
'bi'	
Desirable Heart Rate Zone	
'bi bi'	
Below the Heart Rate Zone	

The upper limit →

The lower limit →
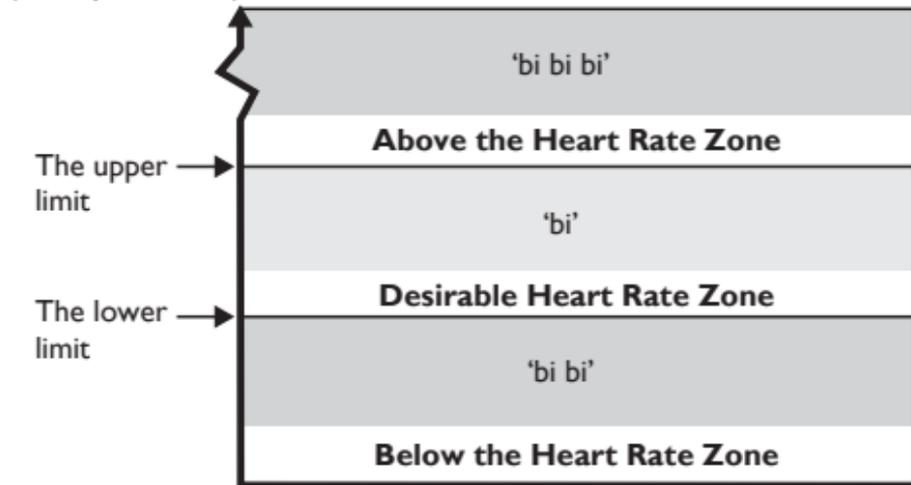
12.0 Using the Chronograph

This watch includes a stopwatch function which measures elasped time. In Chronograph Mode, press **[S/S]** to start or stop counting. To reset, hold **[M]** when the chronograph has stopped.

```
┌─ 00ʹ00ʺ00 ─┐
│  Zero Display │

      [S/S]
       ▼

    00ʹ00ʺ88
  Counting Display

      [S/S]
   ▲      ▼
  [S/S]

    00ʹ00ʺ92
 Counting Stop Display

    hold
    [M]  ▼
```

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