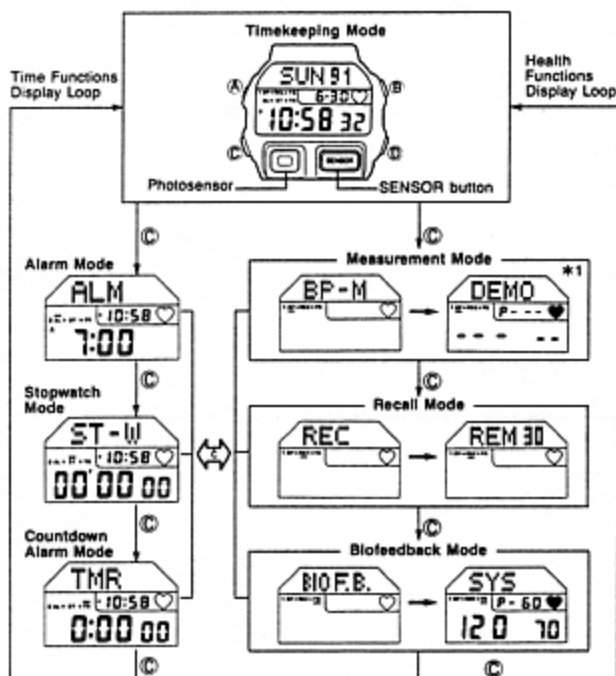


Module No. 900

GENERAL GUIDE

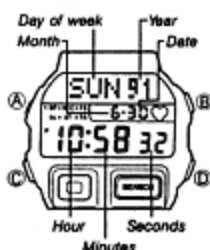
- Ⓢ: Hold down Ⓢ for at least 2 seconds to change between the Health Functions display loop and the Time Functions display loop.
 Ⓢ: Press Ⓢ to change from mode to mode. Each mode is explained in detail on the following pages.



*1 "DEMO" message appears, if there is no basic data in memory when you enter the Measurement Mode. If there is basic data already in memory, the message "READY" appears.

TIMEKEEPING MODE

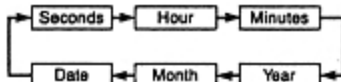
Hold down Ⓢ to illuminate the display.



To set the time and date

1. Press Ⓢ while in the Timekeeping Mode until the seconds digits start to flash on the display. The seconds flash because they are selected.

2. Press Ⓢ to change the selection in the following sequence.



3. While the seconds digits are selected (flashing), press Ⓢ to reset the seconds to "00". If you press Ⓢ while the seconds count is in the range of 30 to 59, it is reset to "00" and 1 is added to the minutes. If the seconds count is in the range of 00 to 29, the minutes count is unchanged.
 4. Also while the seconds digits are selected, press Ⓢ to switch between 12-hour and 24-hour timekeeping formats.
 5. While any other digits (besides seconds) are selected (flashing), press Ⓢ to increase the number. Holding down Ⓢ changes the current selection at high speed.
 6. After you make your settings, press Ⓢ to return to the Timekeeping Mode.
- The day of the week is automatically set in accordance with the date.
 - The date can be set within the range of January 1, 1990 to December 31, 2029.
 - If you do not operate any button for a few minutes while a selection is flashing, the flashing stops and the watch goes back to the Timekeeping Mode automatically.

USING THE HEALTH FUNCTIONS

The blood pressure measurements taken by the watch are based on four basic data items, two of which are input automatically (measured) as you wear the watch and two of which you have to input yourself. The following table shows each data item and how it is input.

Basic Data	PWTT	Pulse	Diastolic BP	Systolic BP
At-Rest	Measured	Measured	Manual Input	Manual Input
Post-Exercise	Measured	Measured	Manual Input	Manual Input

Once the measured and manually input basic data is stored in memory by the watch, it takes subsequent blood pressure measurements based on this data. Because of this, it is a good idea to update the basic data periodically.

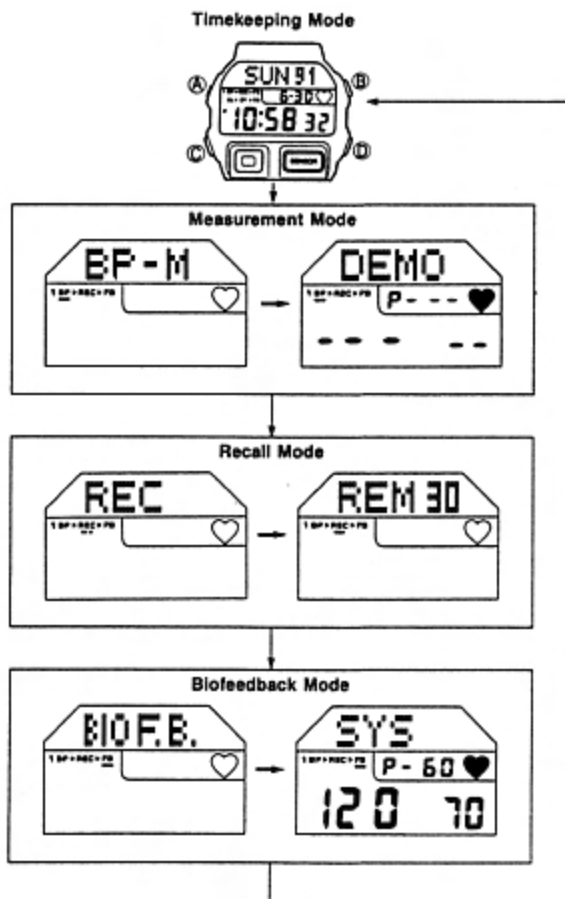
Caution

This watch is not a precision measuring instrument.

- The data produced by this watch is not actually a measurement of your blood pressure. Instead it represents a calculated value based on a blood pressure measurement taken using a standard blood pressure measuring instrument and input by user, and on data measured by the watch. This means that the data produced by this watch should be used for reference purpose only, and should not be considered a totally accurate measurement of actual blood pressure.
- No responsibility is assumed for any incidental or consequential damages, including but without limitation to damages resulting from mathematical or blood pressure measurement inaccuracy or the loss of stored data.

To enter the Health Functions display loop

1. While in the Timekeeping Mode, press Ⓢ.
2. If the display that appears is a Time Functions display, hold down Ⓢ for at least 2 seconds. This will enter the Health Functions display loop.

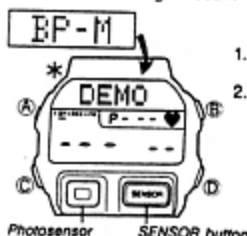


MEASUREMENT MODE

If you do not press any button for 14 or 15 minutes in the Measurement Mode, the display returns to the Timekeeping Mode automatically.

To input basic data

- In the following procedure, the watch measures your PWTT and pulse. You must input systolic and diastolic blood pressure data measured using a standard blood pressure measuring instrument. If you do not have such an instrument on hand, input blood pressure readings measured during a recent visit to your doctor, etc.



- Put the watch on your left wrist.
- While in the Timekeeping Mode, press **(A)** to enter the Measurement Mode in the Health Functions display loop.

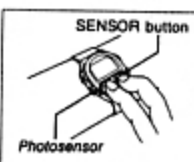
* "DEMO" message appears if there is no basic data in memory when you enter the Measurement Mode. If there is basic data already in memory, the message "READY" appears.



- Press **(A)** and the pulse rate setting will flash on the display because it is selected.



- Press **(B)** to start PWTT and pulse rate measurement.



- Pressing down gently on the SENSOR button with the middle finger of your right hand, immediately place your right index finger onto the Photosensor of the watch. Do not press down on the Photosensor, but make sure that the pad of your finger completely covers the sensor.

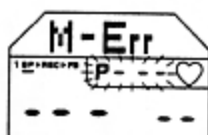


- After a few moments, the display should change to show the "♥" flashing and a cardiogram line scrolling across the top of the display. This indicates that your pulse is being measured. Try not to move your right hand index finger during this measurement.

- Once a correct measurement is achieved, the watch beeps and the measured pulse rate appears on the display. If a correct measurement cannot be taken, the message "M-Err" appears on the display. In this case, press **(A)** and try again. Be sure that your middle finger is pressing lightly on the SENSOR button, and that the pad of your index finger covers the photosensor completely.



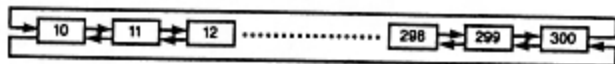
Correct



Error



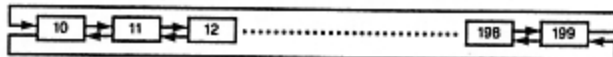
- After you successfully take a reading of your pulse rate, press **(A)**, and the systolic blood pressure value flashes on the display because it is selected. Press **(A)** to increase the systolic blood pressure value (mmHg) and **(B)** to decrease it, within the following range.



Holding down **(A)** or **(B)** changes the value at high speed.



- After you set the systolic blood pressure, press **(B)**, and the diastolic blood pressure value flashes on the display. Press **(A)** to increase the diastolic blood pressure value (mmHg) and **(B)** to decrease it, within the following range.



Holding down **(A)** or **(B)** changes the value at high speed.

- After you set the diastolic blood pressure, press **(A)**, and the display will change as follows.



Post-Exercise Data



Setting Display



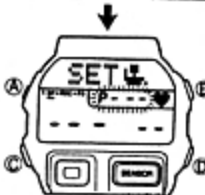
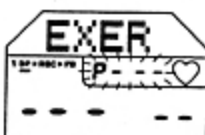
- To complete the basic data setting procedure without setting any post-exercise data, press **(A)** to return to the Measurement Mode display.

Important

After you complete the above procedure, take a few blood pressure measurements with the watch to see if it produces normally expected data. If the systolic and diastolic blood pressure values produced by the watch are radically different from the basic data you have just input, repeat the above procedure to re-input your basic data.

- If the message "D-Err" appears on the display, it means that your basic data is not correct. Re-input your basic data starting from step 3 above.
- If you leave the watch alone for 14 or 15 minutes while inputting data, the watch automatically exits the flashing input display and returns to the Measurement Mode.
- Basic data is cleared whenever the battery of the watch is replaced. Be sure to re-input data after having the battery replaced.

To Input post-exercise data



- After you finish exercising (see Recommended exercise for basic data input), press **(A)** twice to show the Post-Exercise Data Setting Display.
- To input post-exercise data, use the same procedures starting from steps 4 through 7 under To Input basic data.
- After you set the post-exercise data, press **(A)** to return to the Measurement Mode display.
- If the message "D-Err" appears on the display, it means that your basic data is not correct. Re-input post-exercise data starting from step 3 under To Input basic data.

CHECKING BASIC DATA

Incorrect basic data causes erroneous values being displayed after you take a blood pressure measurement. Be sure to use the following procedure to confirm that the basic data you input is correct.

To check basic data



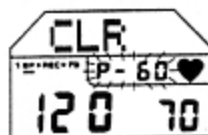
Systolic blood pressure — Diastolic blood pressure

- Press **(A)** again. The message "EXER" appears on the display, along with the post-exercise basic data for systolic blood pressure, diastolic blood pressure, and pulse.

- Press **(A)** again. The message "READY" appears on the display, indicating that the watch is standing by for measurement.

- If the message "D-Err" appears on the display, it means that your basic data is not correct. See the error message table for details.

To clear basic data



Anytime the basic data pulse rate value is flashing, hold down **(B)** for a few seconds to clear the current basic data settings. The watch will beep when the data is cleared.

- Be sure to input new basic data before using the watch to take blood pressure measurements.

To clear post-exercise data

Anytime the post-exercise pulse rate value is flashing, hold down **(B)** for a few seconds to clear the current post-exercise data settings. The watch will beep when the data is cleared.

- Be sure to input new basic data before using the watch to take blood pressure measurements.

To measure blood pressure and pulse data

Important

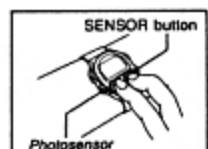
For best results, be sure to set your basic data before using the following procedure. If you do not, the message "DEMO" appears on the display when you enter the Measurement Mode. In this case, the demonstration data of systolic 130 and diastolic 80 are used as default settings. Demonstration data does not represent your actual blood pressure data. Be sure to input basic data before using the watch to measure blood pressure.



- With the watch on your left wrist, use **(C)** to enter the Measurement Mode in the Health Functions display loop.

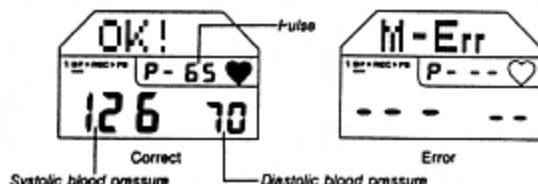


- Press **(D)** to start measurement.



- Pressing down gently on the SENSOR button with the middle finger of your right hand, immediately place your right index finger onto the Photosensor of the watch. Do not press down on the Photosensor, but make sure that the pad of your finger completely covers the sensor.

- After a few moments, the display should change to show the "♥" flashing and a graph of measured data slowly scrolling across the top of the display. This indicates that the measurement is being taken. Try not to move your right hand index and middle fingers during this measurement.
- Once a correct measurement is achieved, the watch beeps and the measured values appear on the display. If a correct measurement cannot be taken, the message "M-Err" appears on the display. In this case, press **(D)** again and try again. Be sure that your middle finger is pressing lightly on the SENSOR button, and that the pad of your index finger covers the photosensor completely.

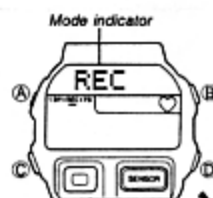


- After you successfully take a measurement, press **(C)** to proceed to the Recall Mode and store the measurement data (systolic/diastolic blood pressure, pulse rate, month, date, day of the week, time) in memory.

Notes

- Blood pressure readings produced by the watch that are exceedingly high or low may indicate a problem with your basic data. If the watch produces abnormal readings for you, try re-inputting your basic data.
- Up to 30 sets of measurement data are retained in memory. If memory is already full when you perform the above procedure, the oldest set of measurement data is deleted to make room for the new data.
- To abort the measurement operation before it is complete, press **(D)**.
- If you have not yet pressed **(C)** to store the measurement data in memory, you can clear it and restart the measurement procedure by pressing **(B)**.
- If you have not yet pressed **(C)** to store the measurement data in memory, you can start the measurement procedure again by pressing **(D)**. The previously measured data that is on the display when you press **(D)** is cleared, without being stored in memory.
- If a preset alarm time is reached while you performing a measurement, the measurement procedure is aborted automatically and the alarm sounds. After the alarm stops you should press **(D)** and start the measurement again.

RECALL MODE



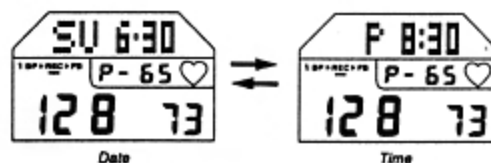
The Recall Mode lets you recall data stored in memory using the Measurement Mode.

- If you do not press any button for 14 or 15 minutes in the Recall Mode, the display returns to the Timekeeping Mode automatically.



To recall data from memory

- Use **(C)** to enter the Recall Mode in the Health Functions display loop.
 - Use **(B)** to scroll forward through the stored data, starting from the oldest set of data, or **(D)** to scroll back from the newest set of data.
- Note that not all of the measurement data can fit on a single display. Because of this, the display switches automatically every few seconds as illustrated below.



To delete an individual set of measurement data from memory

- In the Recall Mode, use **(B)** and **(D)** to display the set of measurement data you want to delete.
- Hold down **(A)** until the watch beeps to indicate that the data has been deleted. This operation increases the remaining memory capacity value by 1.

To delete all measurement data from memory



- In the Recall Mode, use **(B)** and **(D)** to display the remaining memory capacity.
- Hold down **(A)** until the watch beeps to indicate that all data has been deleted. This operation changes the remaining memory capacity value to 30.

BLOOD PRESSURE GRAPH

In addition to recalling individual sets of measurement data in the Recall Mode, you can also display graphs of systolic and diastolic blood pressure data stored in memory. You can display these graphs in the Timekeeping Mode.

To display the blood pressure graphs

1. In the Timekeeping Mode, press **(A)**. One of two blood pressure graphs scrolls across the upper part of the display, from right to left. The type of data shown is indicated by the arrow in the graph.
2. Press **(B)** to switch between the two types of graph.



Systolic Data Graph

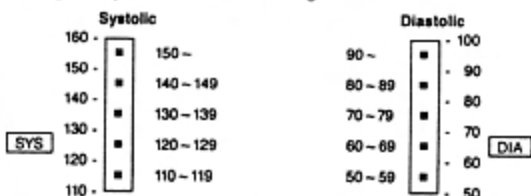


Diastolic Data Graph

3. To return the display to normal, press **(A)** again.

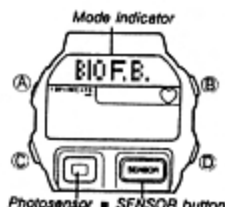
Notes

- The type of graph (systolic or diastolic) that appears when you press **(A)** depends on the type of graph that was last displayed when you previously viewed the graphs.
- Data is displayed oldest data to the left and newest data to the right. Note that a maximum of 21 measurements can be shown on the display at one time.
- Note that the graph is a reasonable facsimile of blood pressure changes only, based on the following scales.



- All blood pressure readings on the graph that are above systolic 140 or diastolic 90 appear on the graph as flashing segments.

BIOFEEDBACK MODE



The Biofeedback Mode gives you feedback on your blood pressure and pulse to help you take control of your activities and moods. It takes 30 consecutive readings, and stores your systolic and diastolic blood pressure, as well as your pulse rate in memory. Note that you should set target data before using this watch to measure blood pressure and pulse rate for biofeedback.

- The memory used for biofeedback data is independent of the normal memory used for storage of systolic blood pressure, diastolic blood pressure, and pulse data. This means that the memory clear operation does not clear this data.

- The Biofeedback Mode measures changes in accordance with the basic data you input in the Measurement Mode. Be sure that the basic data is correct before using this mode. If there is no basic data in memory, the watch uses a systolic blood pressure of 130 and diastolic blood pressure of 80 for the first measurement, and measures subsequent changes.
- If you preset target values for pulse, systolic blood pressure, and diastolic blood pressure, the upper part of the graphic display shows the difference between the measured values and the target values. A buzzer sounds each time you reach a target value.

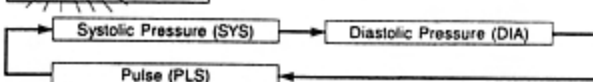
Caution

This watch is not a precision measuring instrument.

- The data produced by this watch is not actually a measurement of your blood pressure. Instead it represents a calculated value based on a blood pressure measurement taken using a standard blood pressure measuring instrument and input by user, and on data measured by the watch. This means that the data produced by this watch should be used for reference purpose only, and should not be considered a totally accurate measurement of actual blood pressure.
- No responsibility is assumed for any incidental or consequential damages, including without limitation to damages resulting from mathematical or blood pressure measurement inaccuracy or the loss of stored data.

To input target biofeedback data

1. Put the watch on your left wrist.
2. Enter the Biofeedback Mode in the Health Functions display loop.
3. Press **(A)** and the value you selected the last time you input target data (pulse, systolic pressure, or diastolic pressure) starts to flash because it is selected. Press **(B)** to change the flashing selection in the following sequence.



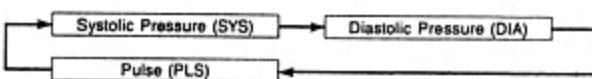
4. While a value is selected (flashing), press **(A)** to increase it or **(B)** to decrease it. Holding down either button changes the current selection at high speed. The following shows the ranges for the target values that can be set in this mode.

Systolic Blood Pressure (SYS): 10 to 300
Diastolic Blood Pressure (DIA): 10 to 199
Pulse (PLS): 30 to 200

5. After you set the target data, press **(A)** to return to the Biofeedback Mode display.
- If there is already measured biofeedback data in memory, a graph appears on the display, and the stored data appears sequentially, value-by-value, on the display.
- If you leave the watch alone for 14 or 15 minutes while inputting data, the watch automatically exits the flashing input display and returns to the Biofeedback Mode.

To measure biofeedback data

1. With the watch on your left wrist, use **(A)** to enter the Biofeedback Mode in the Health Functions display loop.
2. Use **(B)** to select the type of data you want feedback for to appear in the graph in the upper part of the display. Each time you press **(B)**, the selected data changes in the following sequence.



Note that systolic and diastolic blood pressure and pulse are all measured and stored in memory. This selection is applied to the data that is shown in the graph in the upper part of the display during the measurement only. You can later view graphs of the other data.



3. When the data you want to show in the graph is selected, press **(A)** to start measurement.

4. Press down gently on the SENSOR button with the middle finger of your right hand. While holding the SENSOR button down with your middle finger, place the index finger of your right hand on the Photosensor of the watch. Do not press down on the Photosensor, but make sure that the pad of your finger completely covers the sensor.



- After a few moments, the display should change to show the "♥" flashing and a graph of measured data slowly scrolling across the top of the display. This indicates that the measurement is being taken. Try not to move your right hand index finger during this measurement.

- If measurements are within +5% of your target data, the watch beeps.
- If a problem occurs with measurements, the message "M-Err" appears on the display. Any data measured until the problem occurred is stored in memory. When the above message appears, press **(A)** and try again.
- The watch emits a long beep after the measurement is complete, and then produces a graph of the measured data you specified in step 2, in the upper part of the display. The graph scrolls from right to left with oldest data to the left and the newest data to the right.

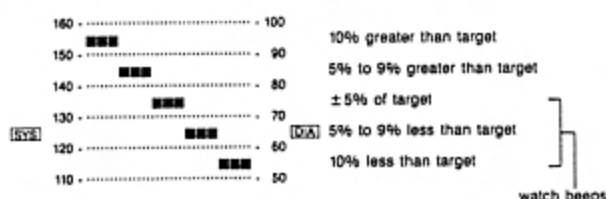
5. To view graphs of other data that was measured, press **(B)** to change the selected data display in the following sequence.



- Data remains in memory until you start the next measurement.

What the biofeedback graph means

The following illustrates what the markings on the biofeedback graphs mean.

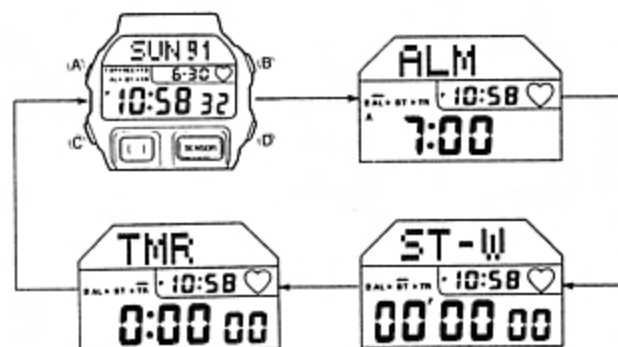


USING THE TIME FUNCTIONS

The Time Functions of this watch perform standard alarm, countdown timer, and stopwatch functions.

To enter the Time Functions display loop

1. While in the Timekeeping Mode, press (C).
2. If the display that appears is a Health Functions display, hold down (C) for at least 2 seconds. This will enter the Time Functions display loop.



ALARM MODE



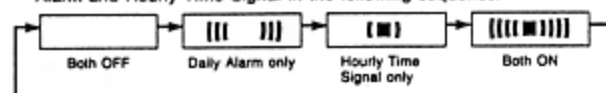
When the Daily Alarm Function is switched on, the alarm sounds for 20 seconds at the preset time each day. Press any button to stop the alarm after it starts to sound. When the Hourly Time Signal is switched on, the watch beeps every hour on the hour.

To set the Daily Alarm time

1. Hold down (A) while in the Alarm Mode until the hour digits start to flash on the display. At this time the Daily Alarm is switched on automatically.
 2. Press (C) to change the selection in the following sequence.
 3. Press (D) to increase the selected digits. Holding down (D) increases the selection at high speed.
- Alarm time setting uses the time format (12-hour or 24-hour) that you select when setting the time in the Timekeeping Mode.
 - When using the 12-hour format please note the A (a.m.) and P (p.m.) indicators on the display as you set the Daily Alarm.
 - 4. After you set the alarm time, press (A) to return to the Alarm Mode.
 - If you do not operate any button for a few minutes while a selection is flashing, the flashing stops and the watch goes back to the initial Alarm Mode display automatically.

To switch the Daily Alarm and Hourly Time Signal on and off

1. Press (B) while in the Alarm Mode to change the status of the Daily Alarm and Hourly Time Signal in the following sequence.



To test the alarm

Hold down (D) while in the Alarm Mode to sound the alarm.

STOPWATCH MODE



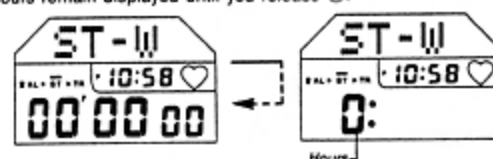
The Stopwatch Mode measures elapsed time, cumulative elapsed time and split times. Time is measured with 1/100 of a second accuracy.

To measure elapsed time

1. Press (D) to start the stopwatch.
2. Press (D) to stop the stopwatch.
3. Press (B) to clear the stopwatch to 00'00 00.

To view the hours display

Any time in the Stopwatch Mode, hold down (A) to view the hours display. The hours remain displayed until you release (A).



To measure cumulative elapsed time

1. Press (D) to start the stopwatch.
2. Press (D) to stop the stopwatch.
3. Press (D) again to resume timing from the time shown on the display. You can repeat steps 2 and 3 as many times as you like.
4. Press (B) to clear the stopwatch to 00'00 00.

To record split times

1. Press (D) to start the stopwatch.
2. Press (B) to display the timing up to that point. Stopwatch timing continues internally.
3. Press (B) to clear the split time and to continue time measurement on the display.
- You can repeat steps 2 and 3 as many times as you want.
4. Press (D) to stop time measurement.
5. Press (B) to clear the stopwatch to 00'00 00.

To time first and second place finishers

1. Press (D) to start the stopwatch.
2. Press (B) when the first finisher crosses the line, and record the time.
3. Press (D) when the second finisher crosses the line.
4. Press (B) to display the finishing time of the second finisher.
5. Press (B) again to clear the stopwatch to 00'00 00.

COUNTDOWN ALARM MODE



The countdown timer can be set within a range of 1 minute to 24 hours. When the countdown reaches zero, an alarm sounds for 10 seconds or until you press any button.

To set the countdown time

1. Hold down (A) while in the Countdown Alarm Mode until the hours digits start to flash on the display. The hours digits flash because they are selected.
2. Press (C) to change the selection in the following sequence.
3. Press (D) to increase the selected number. Holding down (D) increases the selection at high speed.
4. After you set the countdown time, press (A) to return to the Countdown Alarm Mode.
- To set the starting value of the countdown time to 24 hours, set "0:00".

To use the countdown timer

1. Press **[ON]** while in the Countdown Alarm Mode to start the countdown timer.
2. Press **[ON]** again to stop the countdown timer.
- You can continue countdown timer operation by pressing **[ON]**.
3. Stop the timer and then press **[ON]** to reset the countdown time to its starting value.
- When the end of the countdown is reached and auto repeat timing is off, the alarm sounds for 10 seconds or until you stop the alarm by pressing any button. Countdown timing stops, and the countdown time is automatically reset to its starting value after the alarm stops.

To switch auto repeat timing on and off

Press **[ON]** while in the Countdown Alarm Mode to switch auto repeat on and off.

Auto repeat ON indicator



- When the end of the countdown is reached while auto repeat is on, the alarm sounds, but the starting countdown time is reset and countdown timing starts again automatically whenever the countdown reaches zero. You can stop timing by pressing **[ON]**, and manually reset to the starting countdown time by pressing **[ON]**.

RECOMMENDED EXERCISE FOR BASIC DATA INPUT

Though you can input post-exercise basic data after virtually any type of strenuous exercise, the following routine ensures that the required load is placed on your circulatory system. The only equipment you need to perform this exercise is two stair steps, a sphygmomanometer and a watch.

Caution

- When performing the following exercise, be sure to take all possible precautions to ensure that you do not fall or slip off of the steps you are using.
- Should you feel that the pace for your age group is too strenuous, stop exercising immediately. After a rest, try again, using the next slower rank. Keep trying until you find a pace that is comfortable for you.
- Be sure to consult with a physician before attempting this or any other strenuous exercise. Take care not to over do it.
- Should you feel overly fatigued while doing the exercise, stop immediately, and consider using at-rest data only.

You can use post-exercise data obtained after virtually any strenuous activity. The following procedure is recommended to provide best post-exercise basic data measurement.

1. Strap the arm band of a sphygmomanometer to your left arm, and disconnect the rubber hose that connects the arm band to the measuring unit.
2. Perform the exercise described below.
3. Immediately after you finish the exercise, use the rubber hose to connect the arm band to the measuring unit.
4. Simultaneously measure your diastolic and systolic blood pressure (on the sphygmomanometer), along with your PWTT and pulse (on the watch).

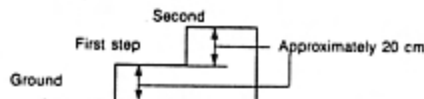
If you find it difficult to take simultaneous measurements, try the following sequence in place of step 4, above.

1. Measure your diastolic and systolic blood pressure on the sphygmomanometer.
2. Measure your PWTT and pulse on the watch.
3. Measure your diastolic and systolic blood pressure on the sphygmomanometer again.
4. Use the average of the diastolic and systolic blood pressure measurements as your post-exercise basic data.

Exercise

Repeat the following for three minutes, using the pace noted below for your age group.

Age	Pace
60-69	11/minute (33 total)
50-59	14/minute (42 total)
40-49	17/minute (51 total)
30-39	20/minute (60 total)
20-29	23/minute (69 total)
10-19	25/minute (75 total)



1. Stand facing the steps.
2. Step up onto the first step with your right foot.
3. Step up onto the second step with your left foot.
4. Step up onto the second step with your right foot.
5. Without turning around, step back onto the first step with your left foot.
6. Step back onto the ground with your right foot.
7. Bring your left foot back to ground.

ERROR MESSAGES

Take the actions indicated when an error message appears on the display.

Error Message	Error Name	Cause	Action
M-Err	Measurement Error	1. No pulse wave detected. 2. Heart's electrical potential or pulse wave exceeds limit. 3. PWTT and pulse continuously outside limits. 4. Pulse wave height too high. 5. Calculated blood pressure result outside of measurement range, or manually input systolic and diastolic values are input in reverse. 6. Alarm sounding during measurement. 7. Cannot pick up electric potential of heart (indicated by "♥" flashing on display without Electrocardiogram). 8. Cannot pick up pulse (indicated by "♣♣♣♣" Electrocardiogram flashing on display).	1 to 4 and 7 to 8 Place both fingers correctly onto the sensors and try again. - Make sure that measurement is in accordance with precautions. - Try again. 5. Check basic data. Correct if necessary. 6. Switch off alarm and try again.
D-Err	Basic Data Error	1. Basic data not correct. 1. Diastolic pressure, systolic pressure, or pulse basic data missing. 2. At-rest systolic pressure basic data greater than post-exercise systolic pressure basic data.	Check basic data. Re-input if necessary. When using at-rest basic data only, be sure that there is no setting made for post-exercise systolic pressure, diastolic pressure and pulse data.
B-Err	Battery Error	Dead battery.	Have battery replaced as soon as possible and re-input basic data.