



Health Care Products



Advanced Technology For Your Lifestyle

Improving the lifestyle of our customers is the aspiration of every Citizen Systems America employee, each of whom is striving to realize a shared ideal. We have superior miniaturization and refinement technologies cultivated by members of the Citizen Group. We have the skills to design quality products which are made to be easily used by anyone. We draw upon these strengths to manufacture state-of-the-art products for a wide range of fields including health information management, information/entertainment and business information equipment.

Our aim is to achieve advances in technologies which enable people to lead more productive and comfortable lives and we will continue to take up new challenges with an eye on our customers' well being.



Citizen's Keyword for the 21st Century: *Micro HumanTech*

MICRO
Citizen Technical Domain

The precision and miniaturization technologies perfected by Citizen through years of development are the basis for all Citizen products.

HUMAN
Citizen Technological Philosophy

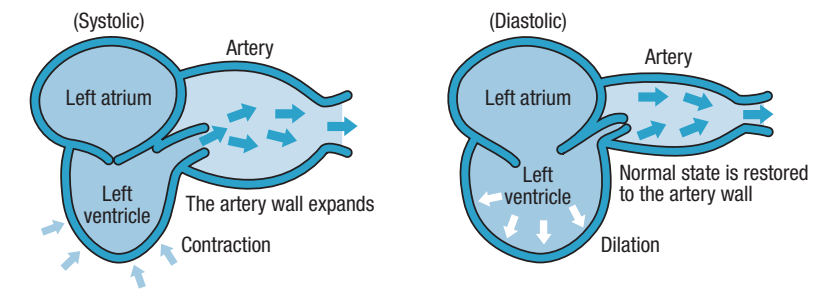
We provide technologies and products which are made to improve the health and well being of our customers as well as their efficiency and productivity.

TECH
Citizen Technological Method

We are committed to provide products combining beautiful design and advanced technology resulting in energy efficient, easy to use and dependable devices.

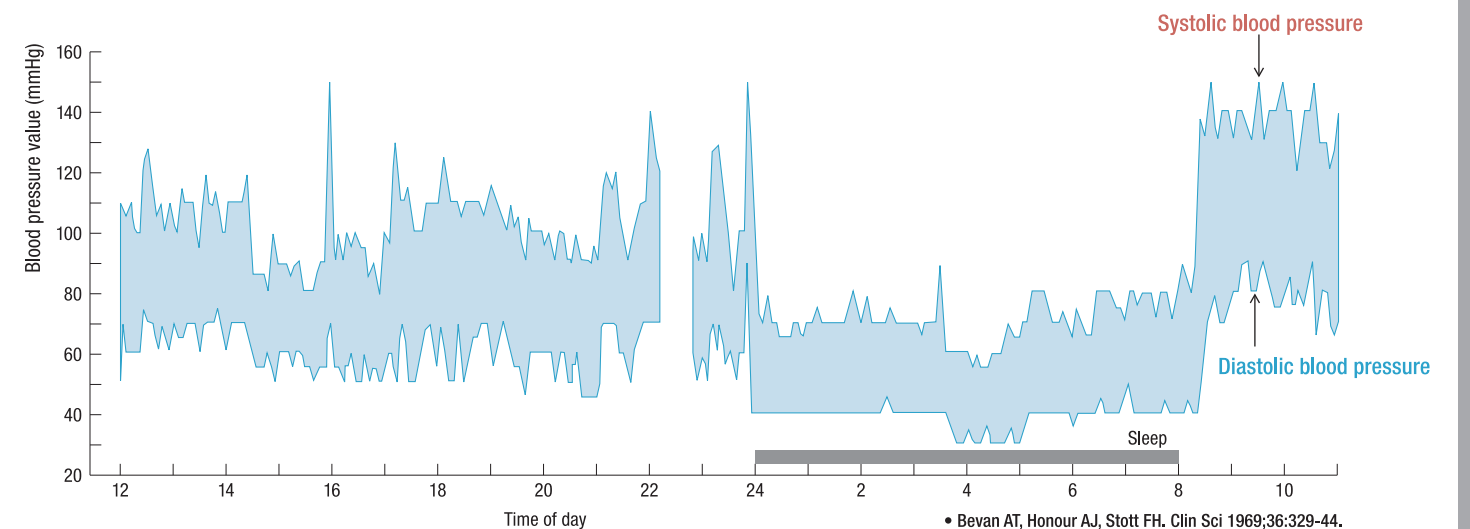
What is blood pressure?

The heart is a pump that circulates blood throughout your body. Blood is pumped from the heart at a constant pressure into arteries. This pressure is called the arterial blood pressure and represents, in general terms, your blood pressure. Blood pressure is indicated by several kinds of pressures, including the systolic pressure that occurs when the heart pumps blood and the diastolic pressure that occurs when blood returns to the heart.



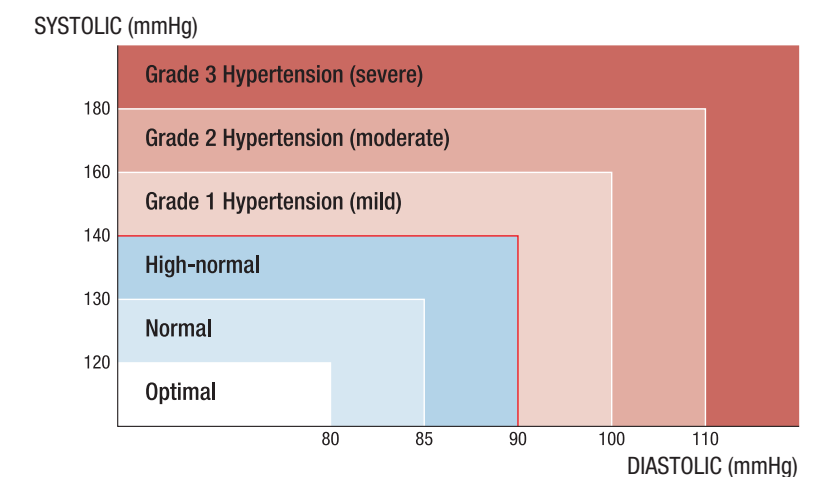
Why your blood pressure changes

Your blood pressure differs according to your age, gender and a range of other factors. It is likely to be affected by your biorhythm during the day and by your posture, physical activities, mental activities, level of stress and even by the air temperature. The blood pressure of a healthy person generally varies during the course of a day.



Blood pressure classifications

The diagram to the right shows the blood pressure classifications under the WHO standards (taking measurements while sitting in a hospital). [WHO / ISH : 1999]



Upper arm / Full automatic

CH-456

- Irregular Heartbeat indicator
- Body movement indicator
- 90 memories function
- Average of last 3 readings
- Cuff storage holder
- Time and date
- AC adapter is optional (AC-230CZ)

Measurement system	Oscillometric method
Measurement range	Pressure: 0 - 280 mmHg Pulse : 40 - 180 pulse/min
Accuracy	Pressure: ± 3 mmHg Pulse : ± 5%
Power source	AA size x 4
Battery life	Optional AC/DC adapter (DC 6V, 0.6A) Manganese battery: Approx. 150 times Alkaline battery: Approx. 500 times
Rated voltage	DC6V 3W (: Direct current)
Outside dimensions	4.13"W x 6.54"H x 4.80"D (105 mm W x 166 mm H x 122 mm D)
Weight	Unit: Approx. 13.8 oz (390g) without batteries Cuff: Approx. 4.6 oz (130g)



How to operate



1 Wrap the cuff around your arm and make sure the blue marker is located in the center of your arm.



2 Place your arm on a table with your palm opened and relaxed. Press the START/STOP switch to start measurement.



3 Blood pressure generally varies in a day. Preferably, you should measure your blood pressure at the same time each day whenever possible.

Upper arm / Full automatic

CH-453

- Irregular Heartbeat indicator
- Body movement indicator
- 90 memories function
- Average of last 3 readings
- AC adapter is optional (AC-230CZ)

Measurement system	Oscillometric method
Measurement range	Pressure: 0 - 280 mmHg Pulse : 40 - 180 pulse/min
Accuracy	Pressure: ± 3 mmHg Pulse : ± 5%
Power source	AA size x 4
Battery life	Optional AC/DC adapter (DC 6V, 0.6A) Manganese battery: Approx. 300 times Alkaline battery: Approx. 1,000 times
Rated voltage	DC6V 3W (: Direct current)
Outside dimensions	5.12"W x 2.09"H x 4.65"D (130 mm W x 53 mm H x 118 mm D)
Weight	Unit: Approx. 8.5 oz (240g) without batteries Cuff: Approx. 4.6 oz (130g)



CH-452

- 90 memories function
- Average of last 3 readings
- Easy to read LCD display
- Automatic power off function
- AC adapter is optional (AC-230CZ)

Clinically Validated
ESH Protocol

Measurement system	Oscillometric method
Measurement range	Pressure: 0 - 280 mmHg Pulse : 40 - 180 pulse/min
Accuracy	Pressure: ± 3 mmHg Pulse : ± 5%
Power source	AA size x 4
Battery life	Optional AC/DC adapter (DC 6V, 0.6A) Manganese battery: Approx. 300 times Alkaline battery: Approx. 1,000 times
Rated voltage	DC6V 3W (: Direct current)
Outside dimensions	5.08"W x 2.16"H x 4.69"D (129 mm W x 55 mm H x 119 mm D)
Weight	Unit: Approx. 8.5 oz (240g) without batteries Cuff: Approx. 4.6 oz (130g)



Wrist / Full automatic

CH-657

- Irregular Heartbeat indicator
- Body movement indicator
- 90 memories function
- Average of last 3 readings
- Ultra Slim compact design: less than 5/8" wide and weighs less than 4 oz.

Measurement system	Oscillometric method
Measurement range	Pressure: 0 - 280 mmHg Pulse : 40 - 180 pulse/min
Accuracy	Pressure: ± 3 mmHg Pulse : ± 5%
Power source	AAA size x 2
Battery life	Alkaline battery: Approx. 400 times
Rated voltage	DC3V 3W (: Direct current)
Outside dimensions	2.72"W x 2.76"H x 0.59"D (69 mm W x 70 mm H x 15 mm D)
Weight	Approx. 3 oz (86g) without batteries



CH-650

- Irregular Heartbeat indicator
- Body movement indicator
- 60 memories function
- Average of last 3 readings

Measurement system	Oscillometric method
Measurement range	Pressure: 0 - 280 mmHg Pulse : 40 - 180 pulse/min
Accuracy	Pressure: ± 3 mmHg Pulse : ± 5%
Power source	AAA size x 2
Battery life	Alkaline battery: Approx. 400 times
Rated voltage	DC3V 3W (: Direct current)
Outside dimensions	2.56"W x 2.91"H x 1.14"D (65 mm W x 74 mm H x 29 mm D)
Weight	Approx. 3.6 oz (103g) without batteries



Wrist / Full automatic

CH-618

- 2-person memory zone (60 memories each)
- Average of last 3 readings
- Time and date

Measurement system	Oscillometric method
Measurement range	Pressure: 0 - 300 mmHg Pulse : 40 - 280 pulse/min
Accuracy	Pressure: ± 3 mmHg Pulse : ± 5%
Power source	AAA size x 2
Battery life	Alkaline battery: Approx. 250 times
Rated voltage	DC3V 3W (: Direct current)
Outside dimensions	2.76"W x 2.83"H x 1.16"D (70 mm W x 72 mm H x 29.5 mm D)
Weight	Approx. 4.5oz (127g) without batteries



CH-617

- 99 memories function
- Average of last 3 readings
- Time and date

Measurement system	Oscillometric method
Measurement range	Pressure: 0 - 300 mmHg Pulse : 40 - 280 pulse/min
Accuracy	Pressure: ± 3 mmHg Pulse : ± 5%
Power source	AAA size x 2
Battery life	Alkaline battery: Approx. 250 times
Rated voltage	DC3V 3W (: Direct current)
Outside dimensions	2.83"W x 2.83"H x 1.16"D (72 mm W x 72 mm H x 29.5 mm D)
Weight	Approx. 4.3oz (121g) without batteries



Upper arm / Full automatic



MODEL	CH-456	CH-453	CH-452
Outside Dimensions	4.13"W x 6.54"H x 4.80"D 105 mm W x 166 mm H x 122 mm D	5.12"W x 2.09"H x 4.65"D 130 mm W x 53 mm H x 118 mm D	5.08"W x 2.16"H x 4.69"D 129 mm W x 55 mm H x 119 mm D
Weight (without batteries)	Unit: Approx. 13.8 oz (390g) Cuff: Approx. 4.6 oz (130g)	Unit: Approx. 8.5 oz (240g) Cuff: Approx. 4.6 oz (130g)	Unit: Approx. 8.5 oz Cuff: Approx. 4.6 oz
Cuff	Soft cuff	Soft cuff	Soft cuff
Memory	90 Memory	90 Memory	90 Memory
Irregular Heartbeat Indicator	●	●	—
Body Movement Indicator	●	●	—
Average	Last 3 readings	Last 3 readings	Last 3 readings
Display simultaneously	●	●	—
Auto measuring	●	●	●
Auto power off	●	●	●
Time & Date	●	—	—
Battery life	500 times	1,000 times	1,000 times
Power source	AA size x 4	AA size x 4	AA size x 4
Optional AC/DC adapter	●	●	●
Silent	●	●	●
Page	P.3	P. 4	P.4

Wrist / Full automatic



MODEL	CH-657	CH-650	CH-618	CH-617
Outside Dimensions	2.72"W x 2.76"H x 0.59"D 69 mm W x 70 mm H x 15 mm D	2.56"W x 2.91"H x 1.14"D 65 mm W x 74 mm H x 29 mm D	2.76"W x 2.83"H x 1.16"D 70 mm W x 72 mm H x 29.5 mm D	2.83"W x 2.83"H x 1.16"D 72 mm W x 72 mm H x 29.5 mm D
Weight (without batteries)	Approx. 3 oz (86g)	Approx. 3.6 oz (103g)	Approx. 4.5 oz (127g)	Approx. 4.3 oz (121g)
Cuff	Soft cuff	Hard cuff	Hard cuff	Hard cuff
Memory	90 Memory	60 Memory	2 x 60 Memory	99 Memory
Irregular Heartbeat Indicator	●	●	—	—
Body Movement Indicator	●	●	—	—
Average	Last 3 readings	Last 3 readings	Last 3 readings	Last 3 readings
Display simultaneously	●	●	●	●
Auto measuring	●	●	●	●
Auto power off	●	●	●	●
Time & Date	—	—	●	●
Battery life	400 times	400 times	250 times	250 times
Power source	AAA size x 2	AAA size x 2	AAA size x 2	AAA size x 2
Page	P. 5	P.5	P.6	P.6



Digital Thermometers

CT-561

- General purpose use
- Water resistant and fully washable
- Auto memory recall of last reading
- Buzzer notice
- 3 digits display
- Auto power off

Measurement system	Temperature peak hold thermometer
Measurement range	89.6°F - 111.2°F
Accuracy	±0.2°F (95.9 - 107.6°F)
Display	3 digits with decimal point, °F, battery weak mark and memory mark
Battery	DC1.5V (Micro Alkaline Battery: L41 x 1)
Battery life	Approx. 1.5 years (If used 10 minutes per day)
Outside dimensions	Approx. 0.72"W x 5.15"H x 0.46"D (18.2 mm W x 130.8 mm H x 11.6 mm D)
Weight	Approx. 0.4 oz (11.2g) Including battery



Digital Thermometers

CT-461

- General purpose use
- Auto memory recall of last reading
- Buzzer notice
- 3 digits display
- Auto power off

Measurement system	Temperature peak hold thermometer
Measurement range	89.6°F - 111.2°F
Accuracy	±0.2°F (95.9 - 107.6°F)
Display	3 digits with decimal point, °F, battery weak mark and memory mark
Battery	DC1.5V (Micro Alkaline Battery: L41 x 1)
Battery life	Approx. 1.5 years (If used 10 minutes per day)
Outside dimensions	Approx. 0.72"W x 5.15"H x 0.46"D (18.2 mm W x 130.8 mm H x 11.6 mm D)
Weight	Approx. 0.4 oz (11.2g) Including battery



COMPARISON CHART



MODEL	CT-561	CT-461
Outside Dimensions (approximate)	0.72"W x 5.15"H x 0.46"D (18.2 mm W x 130.8 mm H x 11.6 mm D)	0.72"W x 5.15"H x 0.46"D (18.2 mm W x 130.8 mm H x 11.6 mm D)
Weight (including battery)	Approx. 0.4 oz (11.2g)	Approx. 0.4 oz (11.2g)
Display	3 digits	3 digits
Water resistant	●	—
Buzzer	●	●
Auto power off	●	●
Memory	Memory recall	Memory recall
Battery life	1.5 years	1.5 years
Power source	LR41x1	LR41x1

Digital Pedometers

TW610

- Thin-type pedometer
- 3-D acceleration sensor
- Indication of amount of exercise
- Accumulated data for 7-day period
- Memory for 14 days
- Drip-proof construction
- Function for preventing measuring errors when walking
- Power saving mode
- Colors available: red or black



BK (black)

3D ACCELERATION SENSOR



RD (red)

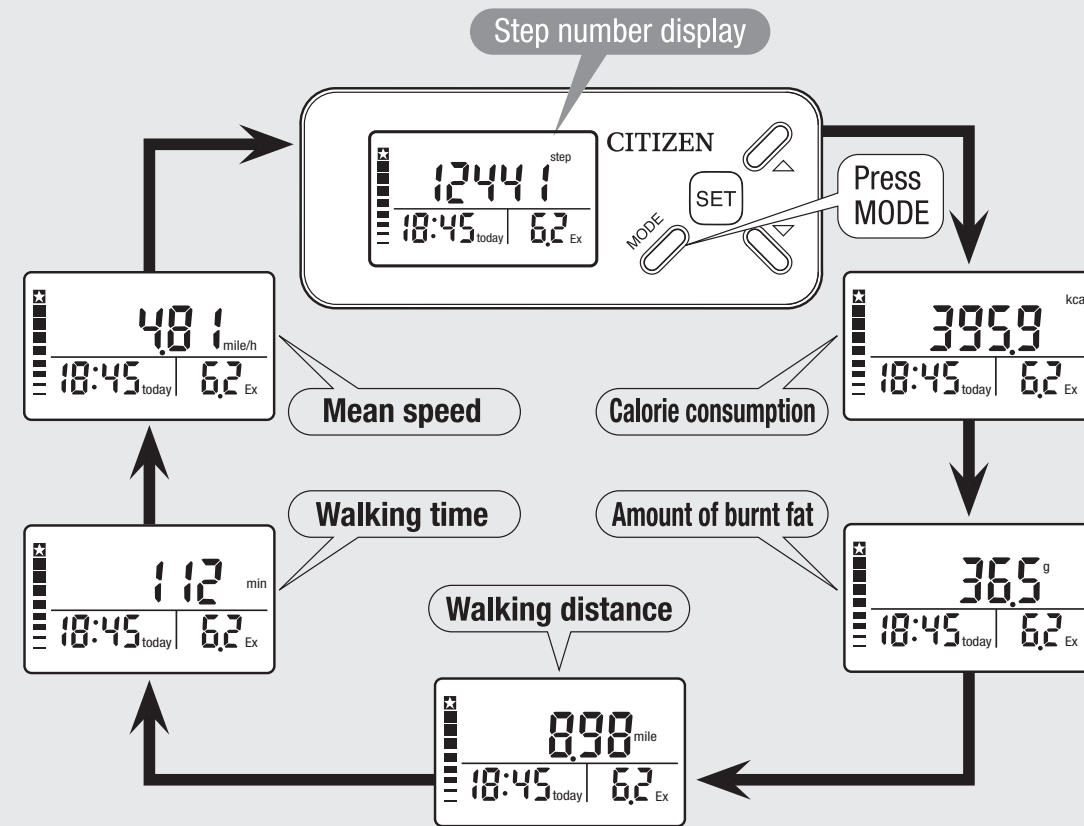
Step detection system	3-D acceleration sensor
Display	LCD
Display contents	Date and time 24-hour system Step maximum 999999 steps Calorie consumption Maximum 99999.9kcal Amount of burnt fat Maximum 9999.9g Walking distance Maximum 999.99 miles Walking time Maximum 99999 minutes Average of walking speed Maximum 99.99 mile/hr Exercise Maximum 99.9Ex Target attainment lever 0 to 8 (on a scale of 9)
Memory	14-day
Power source	Type CR2032 X 1
Battery life	Approx. 6 months (when walking approx. 10000 steps on average per day)
Outside dimensions	Approx. 2.88" W x 1.22" H x 0.39" D (73 mm W x 31 mm H x 10 mm D)
Weight	Approx. 0.88 oz. (25g)



TW610 Features

Reviewing various measured values

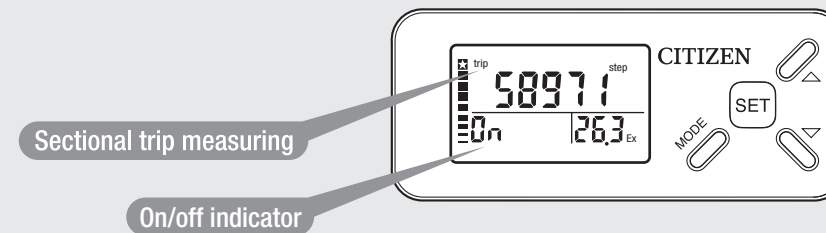
Each time (MODE) switch is pressed, the screen display on the top column changes, enabling you to view respective measured values as shown below: (Number of steps → Calorie consumption → Amount of burnt fat → Walking distance → Walking time → Mean speed → Number of steps...)



Convenient function

Sectional trip measuring

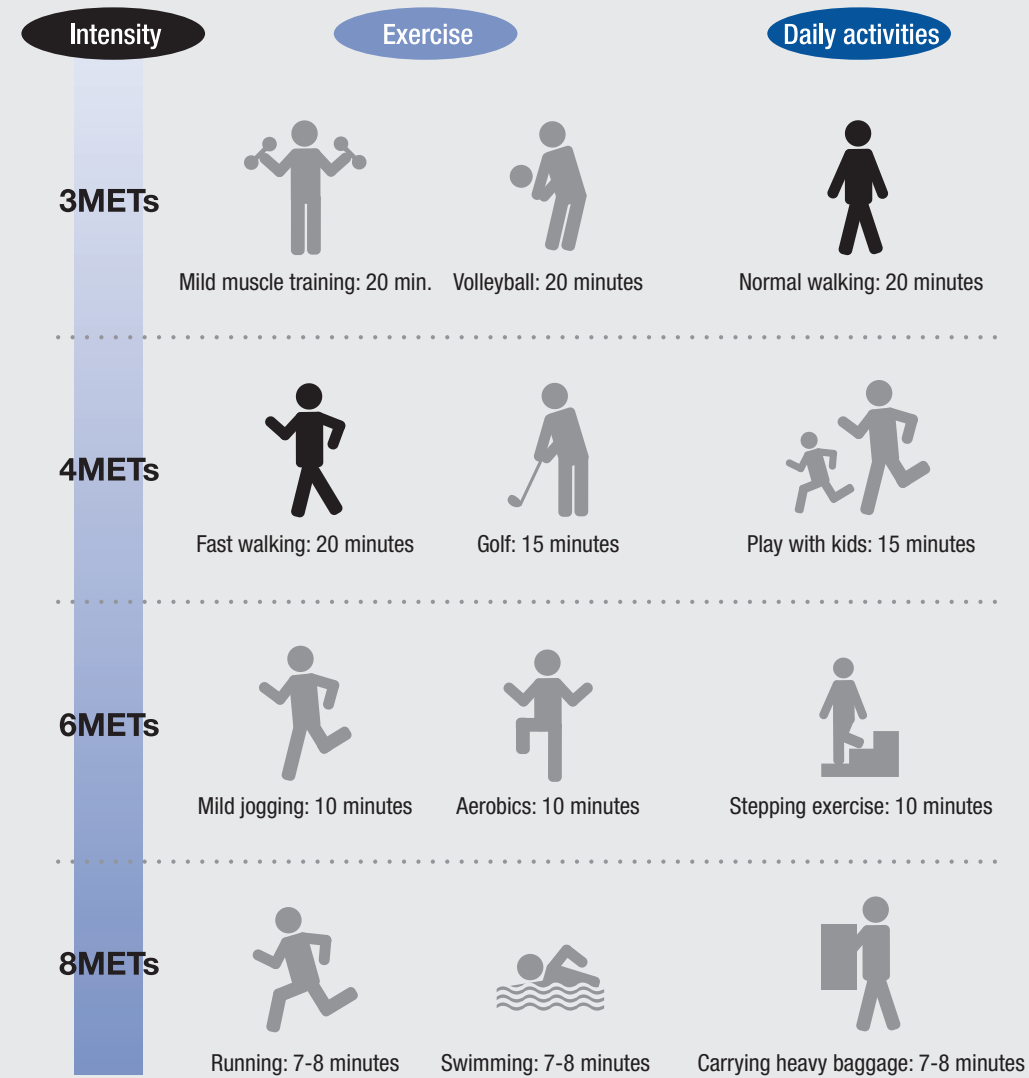
(SET) switch displays the characters reading <trip> on the screen. You can measure the number of steps taken over a certain distance, such as from home to the station, or the accumulated number of steps over a 1-month period, or the number of steps taken on an entire hiking route or excursion.



TW610 Features

Measuring your exercise levels

The chart below illustrates how to measure your daily exercise/physical activity. To prevent illness due to lack of exercise, you are recommended to actively engage in a minimum of 23 exercise/daily activities per week. It is also recommended that you check with your physician before starting any exercise program.



FORMULA:

Amount of exercise = **Ex**

METs = Metabolic Equivalents

Ex = Intensity of physical activities (METs) x Time (hr)

Intensity of physical activities (METs) multiplied by duration (hr) of physical activity = amount of exercise (Ex).

Digital Pedometers

TW310

- Thin-type pedometer
- 3-D acceleration sensor
- Automatic power off function
- Function for preventing measuring errors when walking
- Power saving mode
- Colors available: red or white

WH (white)



3D ACCELERATION SENSOR



RD (red)

Step detection system	3-D acceleration sensor
Display	LCD
Display contents	Step maximum 99999 steps
Memory	1-day
Power source	Type CR2032 X 1
Battery life	Approx. One year (when walking approximately 10000 steps on average per day)
Outside dimensions	Approx. 2.56" W x 1.30" H x 0.47" D (65 mm W x 33 mm H x 12 mm D)
Weight	Approx. 0.64 oz. (18g)

