



Wireless Heart Rate (P4529-HR) User Manual



Rev. WL129HR-12-2023

This product is to be used for educational purposes only. It is not appropriate for industrial, medical, research, or commercial applications.

The wireless heart rate sensor makes monitoring a person heartbeat.

The wireless heart rate sensors makes monitoring a person heart beat simply and easily.

The Heart rate sensor provides a simple way to study the heart's function.

Like an electrocardiograph (EKG) that monitors the electrical signal of the heart, the Hand-Grip Heart Rate Sensor measures electrical signals that start at the heart and reach the skin at the palms of the hands. Reliable and accurate measurements can be made using the electrocardiogram (EKG) method, which monitors the heart's electrical signals. You can measure by remotely connecting to a smart device or PC wirelessly or wired.

Suggested experiments

- Compare the heart rate of different individuals.
- Monitor heart rate before, during, and after exercises.
- Monitor the recovery rate after exercises.
- Check a person's heart rate before and after eating (drinking coffee or Cola).
- Check your own heart rate at different times of the day.
- Monitor a person's heart rate as they hold their breath.

Composition

The wireless heart rate sensor consists of the following.

- Wireless heart rate sensor (P4529-HR)
- USB-A/C cable
- Booklet

Function of wireless sensor

Structure

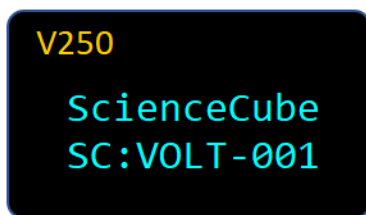


- ① USB port : Connect the sensor to a PC and use it for experiments or charging.
- ② OLED Display : Displays measured sensor values, sensor type, sensor ID, and remaining battery level.
- ③ Power/Function Button : It has functions such as power ON/OFF, measurement sensor change and calibration, etc.
- ④ Sensing part : Detected by holding the metal part with both hands.

Power/Function Button

Status	Turn	Action	Description
When the power is off	Click once	■	A short press turns the sensor on.
	Long click	■■■■■	A long press changes the mode and turns on the sensor.
When it's on	Double click	■■	Change sensor type or range. (Multi-sensor or range sensor only) ECG is displayed above the device.
	Long click	■■■■■	Turns off.

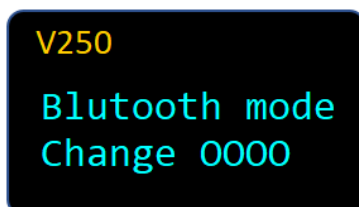
Start screen



V250 : Displays the sensor's firmware version.

SC:OOOO-001 : When you search for a Bluetooth device, the device name will be displayed. (Sensor name and 3-digit serial number)

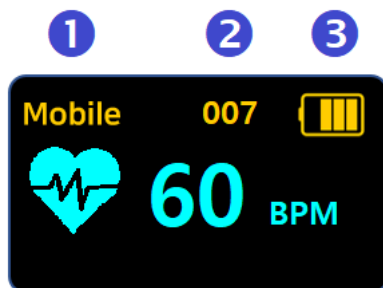
Mode change



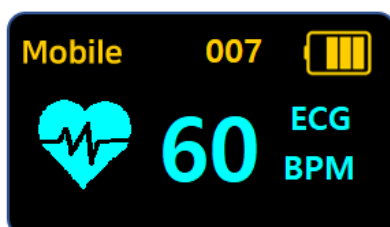
When you press and hold the power button and turn it on, the Bluetooth connection mode changes to **Mobile** or **PC** with the following message.

See last page for more information.

Measurement screen



Multiple sensor screen



① Connection mode

Mobile : Connecting Android or iOS
PC : Connecting to Windows PC
🔌 : Connected via **USB** cable.
※ A long press changes the mode and turns on the sensor.

② Sensor-ID

This is the sensor's unique number and is displayed along with the sensor name in the device name when connected via Bluetooth.

③ Battery

Check the battery status, and when charging via USB, the display will change to charging.

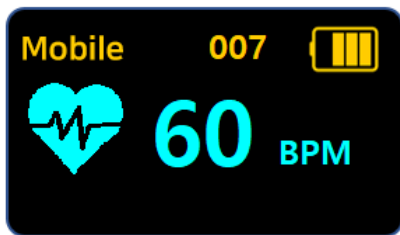
④ Value

1) Displays sensor measurement values and units in real time.
2) For **multiple sensors**, the values for each sensor type are displayed.

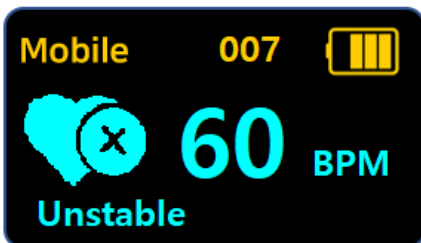
Using the Sensor

The Science Cube heart rate monitor can be used in the following ways:

1. Open the Science# logging program on your smart device.
2. Connect the sensor via Bluetooth or USB.
3. Press Start to start measuring.
4. Hold the metal parts on both sides of the sensor bar with your palms.
5. The heart symbol will blink on the screen and your heart rate will be measured.



If your palm is not in perfect contact with the sensor, you may see an X over the heart symbol and the measurement may not be accurate.



In this case, lightly moisten your palm with water (such as sweat or salt water) for a more accurate measurement.

CAUTION: Clean the hand grips after each use with a damp cloth or paper towel. Do not wet the hand grips in water.

Specifications

Item	Description
Range	0 ~ 250 BPM
Resolution	1 BPM
Sampling Time	Max. 100Hz (0.01 sec.), (Typical 1Hz)
Condition	-20 ~ 60°C, 85%RH
Wireless Connection	Bluetooth 5.0 or Classic 2.1
Wired Connection	USB-C
Battery	700mAh Li-Polymer rechargeable
Charging Time	within 2 hours
Operating Time	Approximately 8 hours after full charge (depending on usage conditions)
Wire Length	Deflated : 20cm Stretched : 100 cm
EMC	CE : EN 61326-1, EN 55011, EN 55032, EN 301

CAUTION: Do not use the instrument beyond the measurement range or in conditions that exceed the short-term exposure limits. Prolonged exposure beyond the maximum permissible range can cause serious damage to the sensor.

How to install Science#

● Install Windows PC version

Online installation file (approximately 39MB)

<http://www.koreadigital.com/url/updates/sciencesharppc/setup.exe>

* Internet connection is required during installation

Offline installation file (approximately 340MB)

http://www.koreadigital.com/url/updates/sciencesharppc/setup_full.exe

* Installation does not require an Internet connection, but contains large content

● Install from a mobile smart device (Smartphone or Tablet PC)

1. Download Science# to your smart device (Refer to QR codes below)
2. Connect using Bluetooth (See Science# documentation or refer to next page)
3. Run Science#
4. When you connect the sensor, the measurement is displayed on the Science# screen



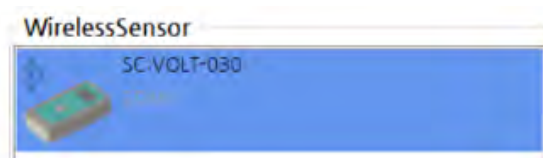
Features

- Up to four wireless sensors can be connected to a PC or smart device at the same time.
- It supports dual-mode Bluetooth, allowing you to connect not only smart devices but also desktop and laptop PCs to conduct experiments using the **Science#** application.
- It can be connected to a PC through a USB port and experiments can be performed using the **Science#** program.

How to connect Wireless Sensor to Science# program

● Windows PC

1. Install and run Science# (Refer to previous page for installation method)
2. Power on the sensor
3. Click the  [Connect] icon and select [Bluetooth Interface] from [Select Interface]
4. [Add Bluetooth or other device] → [Bluetooth] → Add sensor number after checking the number on the backside of sensor
5. When you see like the picture, click on Wireless Sensor and connect



● Android or iOS (Smartphone or Tablet PC)

1. Install and run Science# (Refer to previous page for installation method)
2. Power on the sensor
3. Click the  [Connect] icon and select [Bluetooth Interface]
4. After selecting the device search, check the sensor number on the backside and connect



If you experience any connection issues, check Bluetooth mode on the sensor. Please refer to the next page for instructions on how to change it.

How to switch to Bluetooth mode for Android and iOS

For mobile devices (Android, iOS) Bluetooth Low Energy technology is used for wireless communication. For these devices do not pair the sensor just use it directly in the software.

Turn off the sensor. Then press and hold the power button until the text 'Bluetooth mode Change Mobile' is shown, then release the button. The mode is set to 'Mobile', meaning that Bluetooth Low Energy is used.

How to switch to Bluetooth mode for Windows

For Windows computers, Bluetooth Classic technology is used for wireless communication. Before you start to use the sensor for measurement you have to pair it. If you are asked for a PIN, enter either "1234" or "0000".

Turn off the sensor. Then press and hold the power button until the text 'Bluetooth mode Change PC' is shown, then release the button. The mode is set to 'PC', meaning Bluetooth Classic is used.

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