ScienceCube

# Wireless Heart Rate (WL129HR)

## User Guide


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.**

KOREADIGITAL

***The Science Cube wireless heart rate sensor makes monitoring a person heart beat.***

**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 you own heart rate at different times of the day.
- Monitor a person's heart rate as they hold their breath.

## Composition

***The ScienceCube wireless heart rate sensor*** *consists of the following.*

- Wireless heart rate sensor(WL129HR)
- USB-A/C cable
- Booklet

## Feature

- Up to four Science Cube 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.


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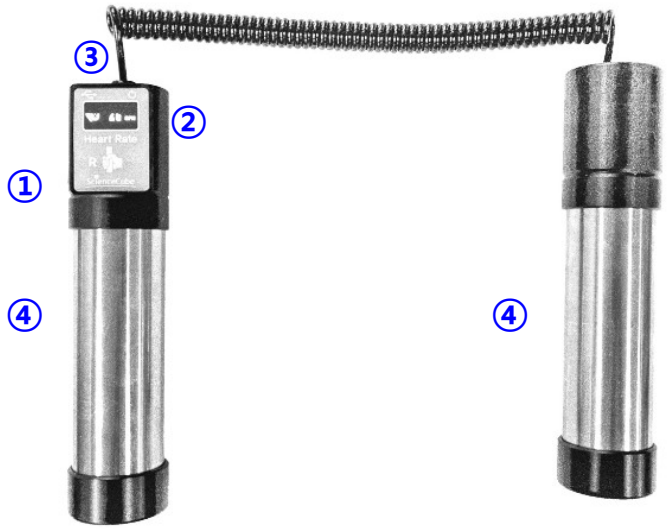
# Function of wireless sensor

## 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.

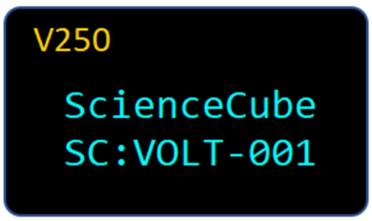
③ Power/Function Button : It has functions such as power ON/OFF, measurement sensor change and calibration, etc.

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. |

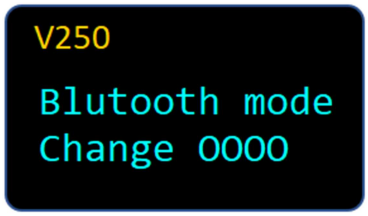
### Start screen




V250 : Displays the sensor's firmware version.

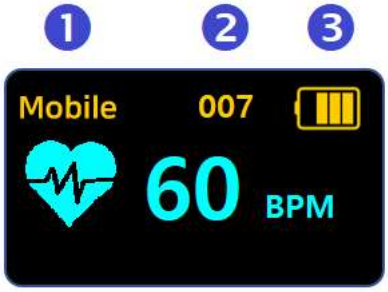
SC:OOOO-001 : When you search for a Bluetooth device, the device name will be displayed. (Sensor name and 3-digit serial number)

### 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.

### Measurement screen




| | |
|---|---|
| **①Connection mode** | **Mobile** : Connecting Androidor iOS.<br>**PC** : Connecting to Windows PC<br>※ A long press changes the mode and turns on the sensor. |
| **②Sensor-ID** | This is the sensor's unique number and is displayed along with the sensor name in the device name when connected via Bluetooth. |
| **③Battery** | Check the battery status, and when charging via USB, the display will change to charging. |
| **④Value** | 1) Displays sensor measurement values and units in real time.<br>2) For **multiple sensors**, the values for each sensor type are displayed. |

### Multiple sensor screen

## 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℃, 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<br>(depending on usage conditions) |
| **Wire Length** | Deflated : 20cm<br>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.**

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