

ScienceCube



Wireless Electrode Amplifier (WL114EA) User Guide



* The electrodes in the example photos are not included with the sensor.

Rev. WL114EA-12-2023

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

The Science Cube wireless Electrode Amplifier measure data with any electrode that has a BNC connector.

The wireless Electrode Amplifier measures data with almost any electrode that has a BNC connector. This includes electrodes from Science Cube such as our pH electrode, or third-party electrodes, such as pH, ISE (ion-selective electrode), or ORP (oxidation-reduction potential).

The electrode is connected to the amplifier by means of a coaxial cable and a BNC connector. The electrode amplifier can produce an output in mV. The voltage produced by the reference electrode in the range of -450 to +1100 mV.

The electrode amplifier will report values in units of pH. If an ORP or ISE electrode is attached, however, you can choose to read in units of mV.

You can measure by remotely connecting to a smart device or PC wirelessly or wired.

Composition

The ScienceCube wireless Electrode Amplifier consists of the following.

- Wireless Electrode Amplifier(WL114EA)
- USB-A/C cable
- Booklet

Feature

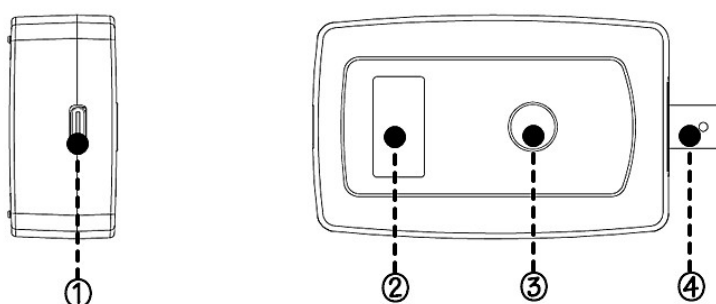
- Up to four Science Cube wireless sensors can be connected to a PC or smart device at the same time.
- It supports dual-mode Bluetooth, allowing you to connect not only smart devices but also desktop and laptop PCs to conduct experiments using the **Science#** application.
- It can be connected to a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

performed using the **Science#** program.



Function of wireless sensor

Structure



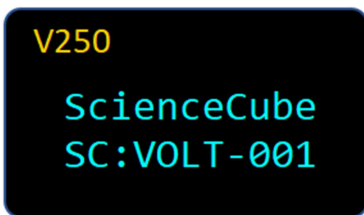
- ① USB port : Connect the sensor to a PC and use it for experiments or charging.
- ② OLED Display : Displays measured sensor values, sensor type, sensor ID, and remaining battery level.
- ③ Power/Function Button : It has functions such as power ON/OFF, measurement sensor change and calibration, etc.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

Caution : Do not use the sensor near fire or explosive gases. High concentrations of contaminants can permanently damage the sensor.

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 | ■■ | 1) Zero point setting (For sensors with zero point function) 2) A user calibration (if the sensor has a calibration function) is performed and U0 or UC is displayed above the device. |
| | Long click | ■■■■■■■■■■ | Turns off. |

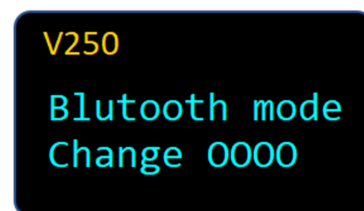
Start screen



V250 : Displays the sensor's firmware version.

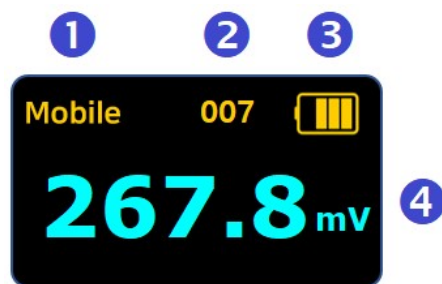
SC:OOOO-001 : When you search for a Bluetooth device, the device name will be displayed. (Sensor name and 3-digit serial number)

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



| | |
|--------------------------|---|
| ① Connection mode | Mobile : Connecting Android or iOS. PC : Connecting to Windows PC ※ 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) If user calibration is used, U0 or UC will be displayed above the units. |

Specifications

| Item | Description |
|---------------------|--|
| Range | -450 mV to 1100 mV |
| Resolution | 0.1 mV |
| Sampling Time | Max. 100Hz (0.01 sec.), (Typical 1Hz) |
| Condition | 0 ~ 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) |
| 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.

Rev. WL114EA-12-2023

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