



# Cheese Stick

## Starter Kit

Robomation website: [robomation.net](http://robomation.net)

This manual contains the necessary information for using our product.  
Please read this manual thoroughly before using it. For more information and operation methods, check out our website.



Cheese Stick



5X5 LED Matrix



Joystick



RGB LED



Switch



Rotary Potentiometer



Servo Motor



L Port Adapter (5 Pin)



M Port Adapter (4 Pin)



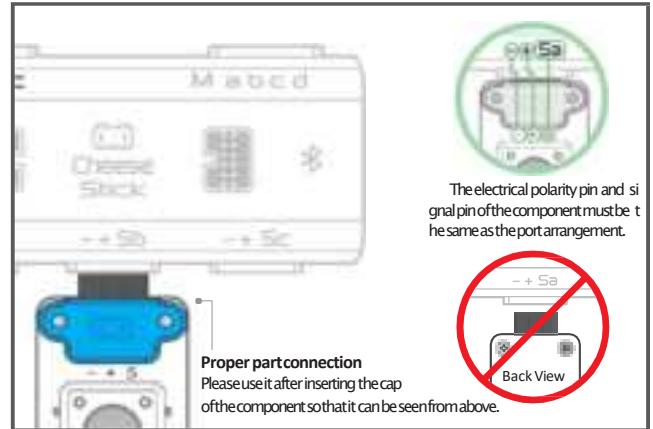
S Port Adapter (3 Pin)



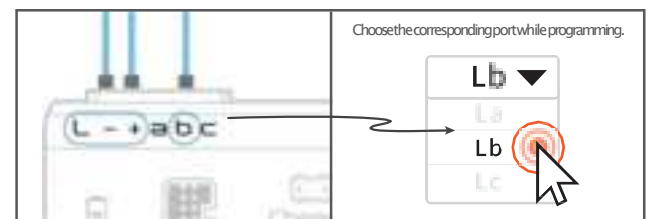
USB Bluetooth dongle

## ■ Precautions: Read Before Use

- Do not charge this product with a fast charger. This product does not provide a charger as recommended by the Ministry of Information and Communication. Therefore, if you purchase our company's charger separately or use an existing charger, please use only a KC-certified charger with a rated output voltage of 5.0V/2A or less. Otherwise, the battery may overheat or explode, resulting in product malfunction or fire. Make sure to charge with the 5-pin USB cable enclosed with this product for optimal performance.
- Since the battery is a consumable, performance may deteriorate depending on the user's usage pattern. If the usage time is drastically reduced, new batteries need to be purchased and repaired. The warranty period for the battery is 6 months.
- If the circuit connection of the product is wrong, it may cause a malfunction. (Failure due to user's misuse is subject to a repair charge.) When connecting electronic components, be careful not to hurt your hand with sharp parts. Please be careful when connecting the product with strong force as it may be damaged. Other accessories (consumables such as servo motors and electronic components) are excluded from the warranty period.
- Depending on the stability of the Bluetooth communication connection environment, communication may not be smooth. Since this product may be continuously updated in the future, it may be necessary to update the firmware depending on the manufacture and purchase time of the product. If you update the firmware for better performance, the usage and other performance may change.
- The performance and contents of the product composition may be improved or changed depending on the manufacturer's circumstances. Before using this product, the user should fully understand how to use it in this manual from [robomation.net](http://robomation.net).



Connect the electrical polarity pins and signal pins of the components to match the electrical polarity and signal of the port. If the cap is reversed or incorrectly connected to another port, it may malfunction. Please use it only after fully understanding the manual.



After connecting the component to the port, it must be set identically in the programming software (e.g. Scratch 3.0) using the port where the component is plugged in and the name of the connected signal pin to operate properly.

## ■ Bluetooth connection

For the Bluetooth connection method, check the connection method on [robomation.net](http://robomation.net) site along with the Bluetooth BLE USB dongle manual.

## ■ How to install Bluetooth BLE USB dongle

**Notice :** Before connecting the dongle to the PC, the USB dongle driver must be installed first.

- ① Insert the Bluetooth BLE USB dongle into the computer USB port.
- ② Install the device driver for the Bluetooth BLE USB dongle

### • Download device drivers

- Download device drivers for your PC's OS from [robomation.net](http://robomation.net) or [hamster.school](http://hamster.school). The 'Robot Coding Software' downloaded from [hamster.school](http://hamster.school) includes a driver and is automatically installed.
- For more information, please refer to the driver installation section at [robomation.net](http://robomation.net) or [hamster.school](http://hamster.school).

## ■ Bluetooth BLE USB dongle pairing method

- Turn on the Cheese Stick and bring it closer to the dongle. (Distance between Cheese Stick and dongle should be within about 20cm)
- It is normal if the Cheese Stick beeps and the Bluetooth indicators on the Cheese Stick and dongle light up blue. Also, it is normal for the LED to blink rapidly while receiving data via Bluetooth communication, and that the light remains on while connected, but not receiving data.
- After pairing the Cheese Stick and dongle in this way, the dongle only finds and connects the Cheese Stick. You only need to pair once, and thereafter you don't need to bring the Cheese Stick close to the dongle and pair it again.

- If you want to connect another Cheese Stick, you can pair the Cheese Stick and dongle in the same way as above.
- The dongle remembers only one of the most recently paired Cheese Sticks. After pairing, data is exchanged even when the Cheese Stick and dongle are far apart.
- Cheese Sticks and dongles are paired only when they are close together, so you can pair or use multiple robots and dongles simultaneously in a classroom environment.

## ■ How to connect scratch and other software

Before using the Cheese Stick in conjunction with the software, you must install the relevant software and drivers. See [robomation.net](http://robomation.net) for details.

## ■ Exchange and Return Information

1. Initial defective products can be replaced or returned only at the place of purchase.
2. If the product is damaged at the time of delivery, or the delivered product is damaged, you must contact the place of purchase promptly.
3. Returns are possible only if a hardware defect occurs within 7 days after purchase, and the purchase receipt is included. (It is not possible due to a software problem or a simple change of mind.)
4. After 7 days of purchase, only free repair within the warranty period is available.
5. At the time of purchase, the purchase statement (purchase receipt) must be submitted. Simple receipts are not accepted.
6. A refund is not possible if the exterior is damaged or all components are not returned after receiving the product.

## ■ Child Protection

Keep out of reach of children. You can damage yourself or others. There is a risk of suffocation due to the small parts being separated from the product.

## ■ Battery

New or unused batteries may temporarily lose capacity. Always charge the battery fully before first use and use it only for its intended purpose. When charging, the ambient temperature should be maintained between 41°F (5°C) and 113°F (45°C). Always charge and remove the battery with the power off. Battery performance may vary depending on usage environment. There is a risk of fire, explosion, leak, etc. other than batteries certified by the head office. Batteries are consumables, so if the usage time and standby time become significantly shorter, it should be replaced by a new battery.

## ▲ Warnings/Cautions

Please observe the followings as it may cause heat, fire, or explosion.

- 1) Batteries with a level of swelling that can be identified with the naked eye can be dangerous, so contact the manufacturer or seller immediately.
- 2) Use a charger with the exact standard certified
- 3) Keep away from fire (do not put in the microwave)
- 4) Do not leave it inside the car in summer
- 5) Do not store and use in a humid place
- 6) Do not use it for a long time on a blanket, electric floor, or carpet.
- 7) Do not store in an enclosed space for a long time with the power on
- 8) Be careful not to allow metal products such as necklaces, coins, keys, watch straps to touch the battery terminals.
- 9) Use a lithium secondary battery guaranteed by the manufacturer.
- 10) Do not disassemble, crush, penetrate, etc.
- 11) Do not give an abnormal shock such as dropping it from a high place
- 12) Do not expose to high temperature above 140°F (60°C)
- 13) Do not expose to moisture and moisture

## ■ Product Warranty Information

The warranty period of this product is one year after your purchase (requires purchase details), and free repair service is provided only in the case of performance/functional malfunction occurring under normal use within the warranty period. The warranty period for batteries is within 6 months. Other accessories (consumables such as servomotors and electronic components), other than the Cheese Sticks, are excluded from the warranty period. Apps or services provided as a basis for this product may be changed or discontinued without notice due to unavoidable circumstances. In this case, please contact Robomation and we will answer sincerely. However, defects, changes, and discontinuation of apps and software not developed by Robomation are irrelevant to Robomation, so contact the service provider.

Even during the warranty period, the following situations will require a paid service.

1. Failure caused by the user's intention or negligence (handling, falling, shock, breakage, flooding, excessive operation, etc.)
2. Damaged due to forced external pressure.
3. When the product is disassembled, modified, or changed intentionally
4. Exchange of consumable components with poor performance due to normal use
5. Product failure due to natural disasters
6. Failure due to the use of chargers of the wrong standard
7. Failures that do not follow the precautions in the manual
8. Failures occurred during use in an inappropriate use/storage environment (high temperature, high humidity)
9. Failure due to immersion in beverages and water or contamination of foreign substances
10. In case of a malfunction by the user's arbitrary manipulation of software and hardware
11. Other cases of user's negligence.
12. Failure due to their improper use of ports

## ■ Please Read!

The warranty policies could be different depending on the country where you bought our products.

If you have any problems, please contact a customer service center located in your area.

1. The delivery fee is prepaid even if the product is still under warranty. (The designated deliverer can return the product within 7 days after receipt of the product)
2. Both round trips are the consumer's responsibility.
3. The serial sticker and sealed sticker attached to the product are checked for authenticity and dismantled. It is a sticker to check the responsibility of modification. If it is damaged, there may not be covered by the warranty. (Disadvantages such as the inability to apply for free service).
4. When packing the product, put it in packing and pack it safely.
5. The repair cost will be determined by our service regulations.
6. Please contact the product purchasing agent for the repair services. You can get more accurate services. For products purchased directly from Robomation, please refer to [as@robomation.co.kr](mailto:as@robomation.co.kr) or visit our website and contact us. Quick handling is possible when the phone connection is difficult.
7. Please send in for inspection after removing components, appliances, devices, etc. that are not sold by our company from the product body.

## ■ Inspection Fee

In the case of a paid repair, a basic inspection cost will be incurred even if it is not repaired due to a repair cost problem after inspection. (Applicable to our standards) In the case of a free repair case, there is no separate service inspection cost.

Service information

Customer Service Inquiry E-mail: [as@robomation.co.kr](mailto:as@robomation.co.kr)

Manufacturer Website: [robomation.net](http://robomation.net)

## ■ Bluetooth USB Dongle Product Specification

Item	Specification
Size	W38mm×D16mm×H6mm
Weight	2g
Communication Method	Bluetooth BLE4.0

## ■ Cheese Stick Product Specification

Item	Specification
Size	W63mm×D28mm×H15mm
Weight	Less than 20g
Sensor and Device	3-axis accelerometer sensor×1, piezo speaker, S port×3, M port×1, L port×1, HAT port×1, internal temperature sensor
Communication Method	Bluetooth BLE4.0
Battery	Li-poly / 3.7V / 200mAh / Charging voltage (5V)



KC 인증번호:  
R-C-RXR-Cheese Stick BLE

모델명: Cheese Stick BLE

상호명: (주)로보메이션 기기

명칭: 특정 소용력 무선기기

(무선데이터통신시스템용 무선기기)

제조사(제조국): (주)로보메이션 (대한민국) 제

조년월: 별도 표기

※ 해당 무선설비는 운용 중 전파 혼신 가능성이 있음.



KC 배터리 인증 관련 내역

신고번호: YU10458-17003B

신고회사명: (주)로보메이션 주소: 서울 송파구 범

원로128 에이1101-1104호 제품명: 전지

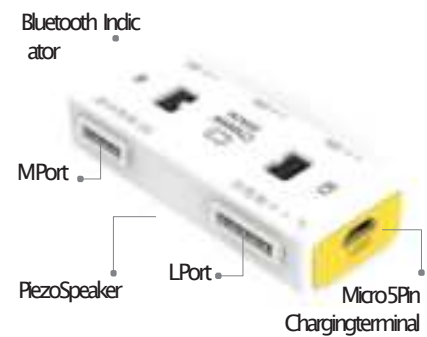
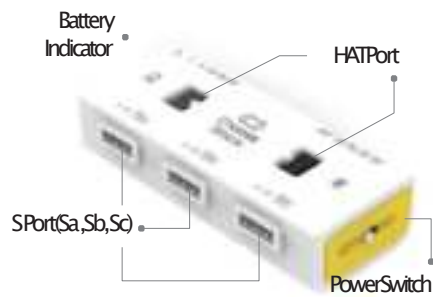
기본모델명: HYP552025

파생모델명: 없음

정격인전기용량의 모델구분: 3.7Vdc., 200mAh

안전기준: KC62133(2015-7)

## ■ Cheese Stick Components' name



## ■ Battery Status Indicator (🔋)

Battery Status	Battery Indicator
Charging	Red indicator turns on
Finished Charging	Red indicator turns off
Insufficient Battery	Red indicator flashes

## ■ Charging

Connect the Micro 5pin USB charging cable to the charging terminal of the Cheese Stick.  
(Power must be turned off and charged-rated charging voltage 5V)

## ■ Turning On and Off the device

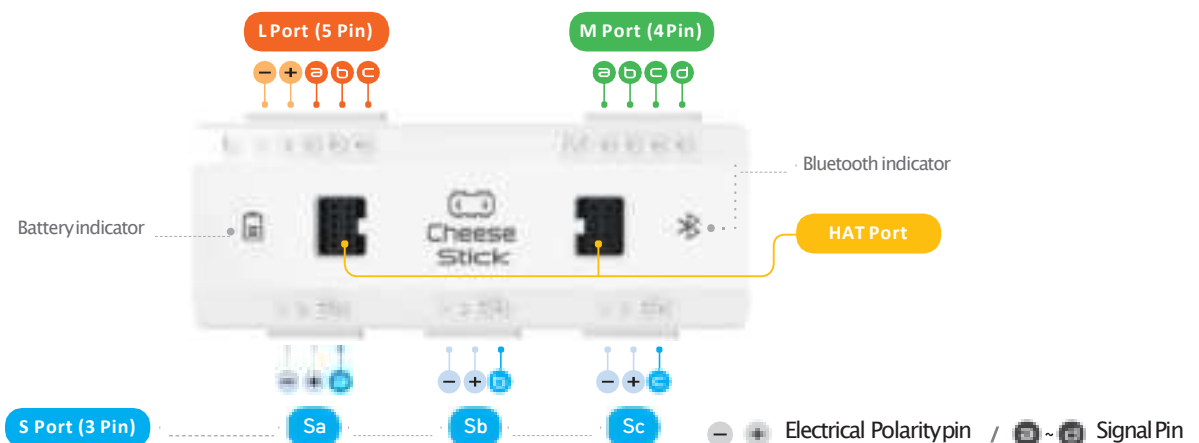
- Turn the power and switch up to go to the ON position.  
When the power is turned on, the Bluetooth connection indicator flashes slowly in blue.
- Turning the power switch down to the OFF position turns off the Cheese Stick.

## ■ Bluetooth Connection Indicator (📶)

Indicator Operation	Meaning of Indicator
Slowly flashing blue light	Waiting to be connected
Constant blue light	Connected
Rapidly flashing blue light	Receiving data

## ■ Electrical Polarity and Signal Pin of the Cheese Stick's Port

The name of the electrical polarity/signal pins on each port is very important when connecting and programming parts.



## ■ Just with the color of caps, you can find out corresponding ports.

Electronic Components manufactured at the head office can be easily distinguished from L/M/S ports by using a color cap on the connection area.  
When connecting the capped components to the corresponding ports, be sure to use the color cap facing up as shown in the figure below.



L Port Orange Cap



M Port Green Cap



S Port Blue Cap

## 'Switch' Connect to S Port

Try implementing the function by pressing the switch.



The Switch consists of 3 pins - + S

## 'Rotary Potentiometer' Connect to S Port

Turn the handle to implement the function as it grows smaller and larger.



The Rotary Potentiometer consists of 3 pins - + S

Insert the Connection Terminal of the Switch into the S Port.



Advised Port  
S Port  
Sa Sb Sc

- ※ When using the S Port, the connected port name (Sa/Sb/Sc) must be correctly specified in the programming software to operate normally.
- ※ When connecting to the L port, connect it to the electrical polarity pin and signal pin of the port. (We do not recommend it because it may lead to incorrect connection by the user's carelessness.)

Insert the Connection Terminal of the Rotary Potentiometer into the S Port.



Advised Port  
S Port  
Sa Sb Sc

- ※ When using the S Port, the connected port name (Sa/Sb/Sc) must be correctly specified in the programming software to operate normally.
- ※ When connecting to the L port, connect it to the electrical polarity pin and signal pin of the port. (We do not recommend it because it may lead to incorrect connection by the user's carelessness.)

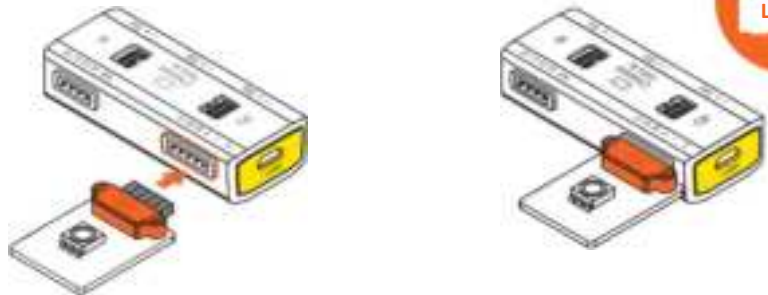
## 'RGB LED' Connect to L Port

Use RGB values to make various lights



The RGB LED consists of 5 pins - + a b c

Insert the Connection Terminal of the RGB LED into the L Port.



L  
L Port

- ※ If you look directly at the LED with strong light intensity, it may adversely affect your eyesight, so use the light intensity carefully.

## 'Joystick' Connect to L/M Port

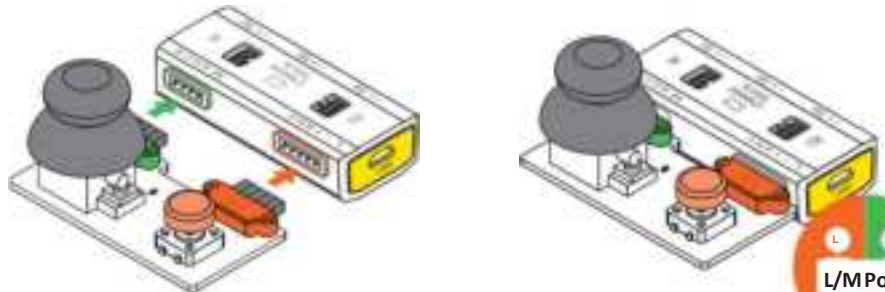
Use the joystick and switch to implement the function.  
Joystick B, Switch A



Joystick consists of 4 pins a b c d

5 pins - + a b c

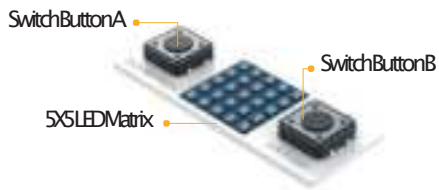
Insert the Connection Terminal of the Joystick into the L/M Port.



L M  
L/M Port

## '5x5 LED Matrix' Connect to HAT Port

Use 5x5 LED Matrix and Switch to implement the function.



The HAT port can be connected regardless of the inserting direction.

## 'Servo Motor'

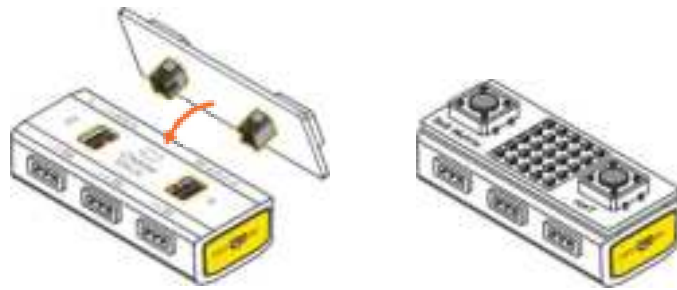
Place the horn on the Servo Motor to implement a dynamic function.



The Servo Motor consists of 3 pins - + S

※ When connecting directly to a CheeseStick, 5 servo motors can be connected. Each port type has a different plugging direction, so use with caution. If multiple servo motors are used, insufficient power may cause malfunction.

Insert the Connection Terminal of the 5x5 LED Matrix into the HAT Port.

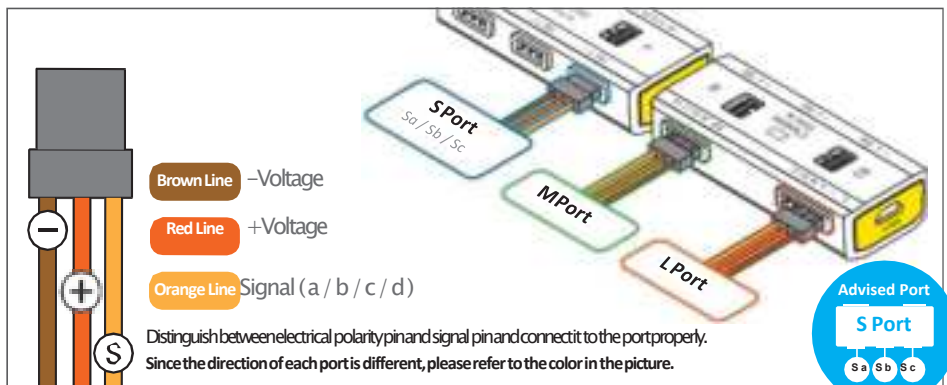


HAT Port



Side View (Figure A)

※ When the component is inserted into the HAT port, a gap between the body of the CheeseStick and the electronic component is normal. (See Figure A)  
※ If you look directly at the LED with strong light intensity, it may adversely affect your eyesight, so use the light intensity carefully.



Distinguish between electrical polarity pin and signal pin and connect to the port properly. Since the direction of each port is different, please refer to the color in the picture.

Advised Port

S Port

Sa Sb Sc

※ Normal operation is possible only when the name of the connected port is correctly specified in the programming software.  
※ After understanding the arrangement of the electrical polarity/signal wires of the electronic components, connect them correctly before beginning. Incorrect connection may cause malfunction or damage.

## 'Adapter'

Expand and connect various electronic components with adapters



S Port Ad  
apter (3Pin)

M Port A  
dapter (4Pin)

L Port Ad  
apter (5Pin)

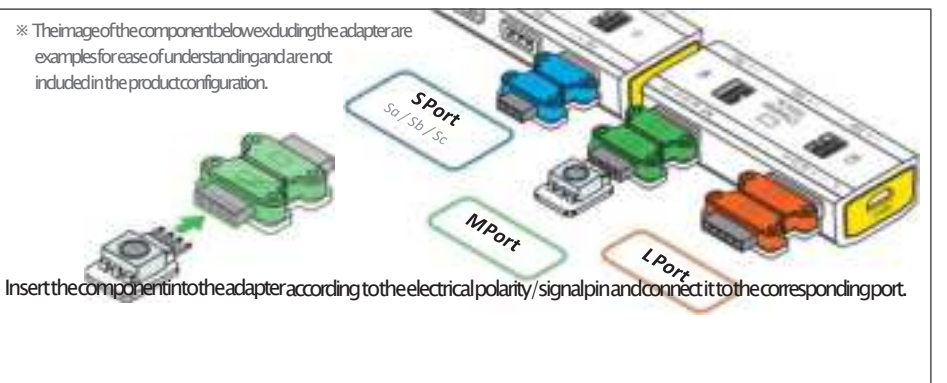
These are compatible lead adapters used to connect electronic components that are not in the starter kit to the CheeseStick.

## 'Connecting Cable'

Depending on the purpose, the length of the electronic component can be extended or can be used as the cable itself.

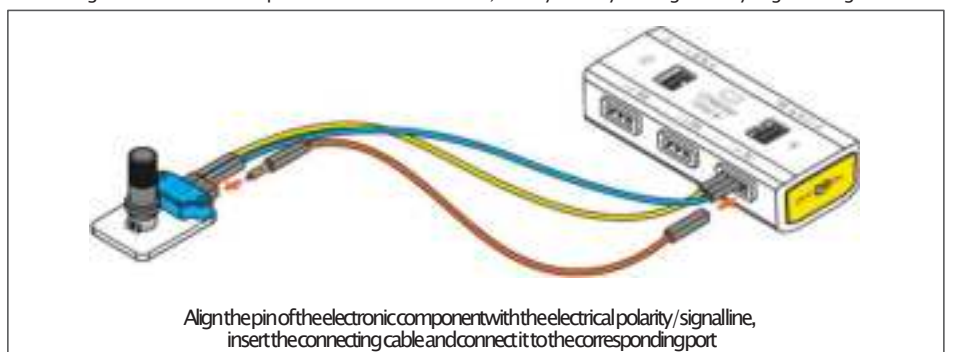


The connecting cable consists of a pin on one side and a terminal on the other.



Insert the component into the adapter according to the electrical polarity/signal pin and connect it to the corresponding port.

※ The image of the component below excluding the adapter are examples for ease of understanding and are not included in the product configuration.  
※ When connecting other product components, do not connect them directly even if the number of pins is the same. The arrangement of electrical polarity and signal lines may be different.  
※ Please note that the CheeseStick malfunction that occurs while using other products' components are not covered by our product warranty.  
※ Check the arrangement of the electrical polarity/signal wires of the electronic components to be used and connect them properly before use. Incorrect connection may cause malfunction.  
※ If the arrangement order of electronic components is different from the CheeseStick, it can only be used by connecting individually using a connecting cable.



Align the pin of the electronic component with the electrical polarity/signal line, insert the connecting cable and connect it to the corresponding port

※ The connected port must be correctly specified in the programming software for normal operation.  
※ Check the arrangement of the electrical polarity/signal wires of the electronic components to be used and connect them properly before use. Incorrect connection may cause malfunction or damage.

## **FCC Statement**

### **Federal Communication Commission Interference Statement**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**FCC Caution:** Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

### **IMPORTANT NOTE:**

#### **FCC Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with minimum distance 0mm between the radiator & your body.