Hamster

Hamster robot is a small,
cute education robot
for software education.

Make sure to refer to

Manufacturer website : robomation.net
Education assistance website : hamster.school

This instruction contains only basic information of the product. For more information, please refer to the above websites.

Manufacturer website : robomation.net

Education assistance website : hamster.school

Cautions before use

- Be cautious not to apply excessive force on motor and wheels.
- Motor is a consumable part. When its expected life is over or a problem occurs, you will need to buy a new one to replace it.
- Due to the characteristics of DC motor, the speeds of the motors on each side could be different.
- Due to the characteristics of motor, motor speed could be changed by period of use.
- The warranty period for consumable parts (motor, battery, etc.) is six months.
- Battery is a consumable part thus its performance could decline based on user's use pattern. If battery life is significantly reduced, you will be required to buy a new battery for replacement.
- Make sure to check how to use IN / OUTPUT extension port. (Refer to website and education assistance website)
- If circuit is incorrectly connected to extension port, it can cause serious malfunctions or device failures. (repairing problems caused by misuse of the device will be paid repair)
- For Bluetooth connection, the connection status could be weak based on your connection environment.
- The hamster robots go through movement and sensor inspections before shipment. Thus, there could be substances such as dust on the wheels and bottom of the robots.
- The performance and contents of the product is subject to change based on circumstances of the manufacturer.
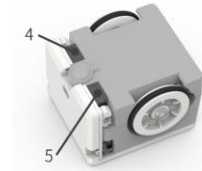

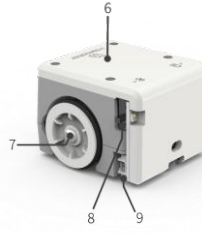## Basic Information

1/2. Distance sensor

3. Luminous intensity sensor

4/5. Line(floor) sensor × 2

6. Piezo speaker

7. Left wheel (DC motor)

8. Power switch

9. Power output port

10. Micro USB recharging port

11. Right wheel (DC motor)

12. Input / Output extension port

How to turn on power

Lift the power switch up to ON position.
When power is on, Bluetooth connection status light is going to slowly flicker in blue light.

How to turn off power

Pull the power switch down to OFF position and the power to the hamster robot is going to be turned off.

Recharging

Connect Micro USB recharge cable to USB recharge socket on the hamster robot.
(You must turn off the power when recharging).

Battery status light (🔋)

Battery status	Battery light
Recharging	Light is on
Recharging complete	Light is off
Recharging required	Light flickers

Bluetooth connection status light (❄)

Light	Meaning
Blue light flickers slowly	Waiting for Bluetooth connection
Blue light is on	Bluetooth connection is on
Blue light flickers quickly	Receiving data

How to connect Bluetooth

For Bluetooth connection, please refer to Bluetooth BLE USB dongle instruction and hamster.school website.

How to connect scratch and entry (other software)

You are required to install related software and drivers before linking the hamster robot with the software.
For detailed instruction, please refer to education resources tab in hamster.school website.

How to install Bluetooth BLE USB dongle

Caution : You must install USB dongle driver before connecting dongle to PC.

Downloading device driver

Download device driver that fits into your PC's OS from robomation.net or hamster.school websites. In scratch, entry, roboid studio, and processing installation files on hamster.school website include the device driver thus the driver will be automatically installed.
- For more detailed information, please refer to driver installation tab on robomation.net or hamster.school.

Bluetooth BLE USB dongle pairing

- Turn on power of the hamster robot and move it closer to the dongle. (less than 20cm between the robot and dongle).
- When the hamster robot makes beep sound and the Bluetooth lights on hamster robot and dongle are on or flicker quickly, it is normal. When receiving data through Bluetooth connection the light is going to flicker quickly. When it is connected but not receiving any data, the light is going to be on without flickering.
- After pairing the robot and dongle in such way, for all future use the dongle will automatically find the robot and establish the Bluetooth connection. Therefore, there will be no need for additional pairing once initial pairing is done.
- To connect another hamster robot, follow the same pairing instruction given as above.
- The dongle remembers only one hamster robot with the most recent pairing.
- After pairing, the hamster robot and dongle will exchange data even if they are far away.
- The pairing can only be done when Hamster robot and dongle are in close range thus you cannot use many robots and dongles at the same time in a classroom environment.

USB dongle Bluetooth connection status light

Dongle status light	Meaning
Blue light flickers slowly	Waiting for connection
Blue light is on	Connected to robot
Blue light flickers quickly	Exchanging data with robot

Entering AI Mode

On the hamster robot, there is a built-in AL mode which allows the robot to move by itself without Bluetooth connection.
- Lift the power switch up to turn on the power and within one second, quickly pull the switch down to turn off the power of the hamster robot.
- When you lift the hamster robot up to turn on power again, green light will appear on the LED light on the front side of the hamster robot and the robot enters into AI mode.

Types of AI mode

1. Hand (object) detection mode (green LED light is on in the front)
- The hamster robot will perceive hand or object in the front.

2. Line (floor) sensor mode (red LED light is on in the front)
- The robot will move by detecting black or white line on the floor. The robot will follow the black line while trying to not to deviate from the line.

3. Singing mode (blue LED light is on in the front)
- When the hamster robot is flipped over, it will start to play a song.

How to change AI modes

- When the robot first enters into AI mode, it enters into hand detection mode.
- When the hamster robot is pushed from the top or it detects shaking movement, the AI mode is going to be switched to floor sensor mode.
- If you hold the hamster robot turned upside down, it will be switched to singing mode.
- If you hold the hamster robot in the right position, it will be switched back to hand detection mode.

※ The AI modes are subject to change based on the circumstances of the manufacturer.

Children safety

Store the robot where children cannot reach.
The robot can cause damage to you and others. There are small, separable parts which can cause suffocation when swallowed.

Battery

New or old battery unused for long period of time can have temporarily reduced battery life. Before using the robot for the first time, completely recharge the battery and use it solely for the hamster robot.
When recharging, the surrounding temperature should be maintained between +5℃~45℃.
Always turn off the power of the robot when recharging or removing the battery.
The performance of the battery can vary based on the usage environment.
Any battery other than the batteries certified by our company has a risk of causing fire, explosion, and leakage.
Battery is a consumable part thus when its life and waiting time is significantly reduced, you are required to replace the battery to a new battery.

⚠ Caution

Battery has potential danger of causing excessive heat, fire, and explosion thus please follow the rules below.
1) Significantly swollen batteries can be dangerous thus immediately contact the seller or manufacturer
2) Use recharger certified with correct standard
3) Keep away flammables from battery (Do not put it in microwave)
4) Do not leave the battery inside of car in summers
5) Do not store/use the battery in high temperature & humid environment such as sauna
6) Do not use the battery for long period of time on blanket, electric heat pad, or carpet.
7) Do not leave the robot in sealed space with power turned on for long period of time
8) Do not let metal products such as necklace, coin, key, and watch to touch the battery socket.
9) Use lithium secondary battery certified by the manufacturer.
10) Do not disassemble, compress, and penetrate the battery
11) Do not apply abnormal impacts such as dropping the battery from high
12) Do not leave the battery in high temperature above 60℃
13) Do not expose the battery to moisture and water

Product warranty guide

The duration of the warranty for this product is 1 year after the purchase (proof of purchase required) and within such period, free repair service is going to be provided for device performance/function failures occurred under normal device using condition. However, for consumable parts the warranty period is limited to 6 months.

Even in free warranty period, paid repair service is going to be provided under following conditions

1. Failures caused by user's intentional damaging or mistakes (careless use, damage by dropping the product, exposing to water, abnormal operation)
2. When user intentionally disassembled, transformed, or altered the product
3. Replacement of consumable parts with reduced performance after normal use
4. Product damaged by natural disasters
5. Product damaged by using recharger with wrong standard
6. Product damaged by not following the cautions provided by instruction
7. Product damage caused while using it in Improper usage / storage environment (high temperature & moisture)
8. Product damage caused by leakage of beverage, water, or other foreign substances into the product.
9. Product damage caused by user's intentional manipulation on software and hardware
10. Product damage occurred after warranty period ended
11. When user's fault on the product damage is admitted
12. Product damage caused by not following the provided instruction when using expansion port

Product exchange and return guide

1. You can only exchange/return product in the store where you first purchased the product
2. If the product was damaged during the shipment, you need to contact the store where you purchased the product immediately.
3. You can return the product within 7 days after the purchase for refund only if there is hardware defect. (For software defect or simply change of mind cases, refund is not allowed)
4. 7 days after purchase, the free repair service is only provided during the warranty period.
5. You must submit proof of purchase (purchase receipt). Temporary return will not be accepted.
6. If you receive a damaged product, you will need to return every component of the product. Otherwise, you will not be able to receive refund.

Please read!

1. When shipping the product for repair after making a repair arrangement, you will be required to pay the shipping cost in advance. (you can send the product back within 7 days after receiving the product through designated shipping company)
2. For the shipping cost, company and consumer each will pay half of the total shipping cost. For paid repair service, consumer is going to cover full shipping cost.
3. The serial and sealing sticker on the product is for proving authenticity of the product, indicating production date, and checking product disassembling and alterations. If those stickers are damaged, you can receive disadvantages when receiving AS. (You may not be able to receive free repair service)
4. When shipping the product, please put sufficient amount of packing material in the box.
5. The repair cost will be determined based on our company's service policies.
6. Requesting AS service can be made to the store you purchased the product. You will be able to receive more accurate service in the local store. If you purchased the product directly from robomation, please contact to robomation@hanmail.net or website to request AS service. It is the quickest way when phone lines are busy.
7. Please remove any parts, equipment, and installation that were not provided by our company before shipping the robot to us.

Inspection cost

For paid repair service, even if the product status is normal thus no repair is required, there is a basic fee for inspection (Company standard is going to be applied). For free repair service, there will be no inspection fee.

Model name : Hamster
FCC ID : 2AK2Q-HAMSTER
Company name : Robomation Inc.
Device name : lower power wireless device (wireless device for wireless data communications)
Manufacturer (Country of manufacture) : Robomation Inc. (Republic of Korea)
Date of manufacture : indicated separately
※ This wireless device has a possibility of causing electromagnetic wave interferences.
Service guide
AS inquiry E-mail : robomation@hanmail.net As inquiry phone number: 070-8637-1651 Manufacturer website : robomation.net
Warning : This equipment may generate or use radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

Bluetooth USB dongle product specification

Subject	Specification
Size	Width 22mm × Length 64mm × Height 6.5mm
Weight	6g
Communication method	Bluetooth LE 4.0 (2402 ~ 2480 MHz)

Hamster product specification

Subject	Specification
Size	Width 35mm × Length 40mm × Height 30mm
Weight	30g
Sensors and driving devices	Front distance sensor x 2 DC geared motor x 2 Floor sensor x 2 7 color LED x 2 Tri-axis acceleration sensor x 2
Communication method	Bluetooth LE 4.0 (2402 ~ 2480 MHz)
Battery	Li-poly / 3.7V / 120mA
Duration of operation	About an hour (Based on lab test)

※ The duration of operation may vary based on user's operating behavior.