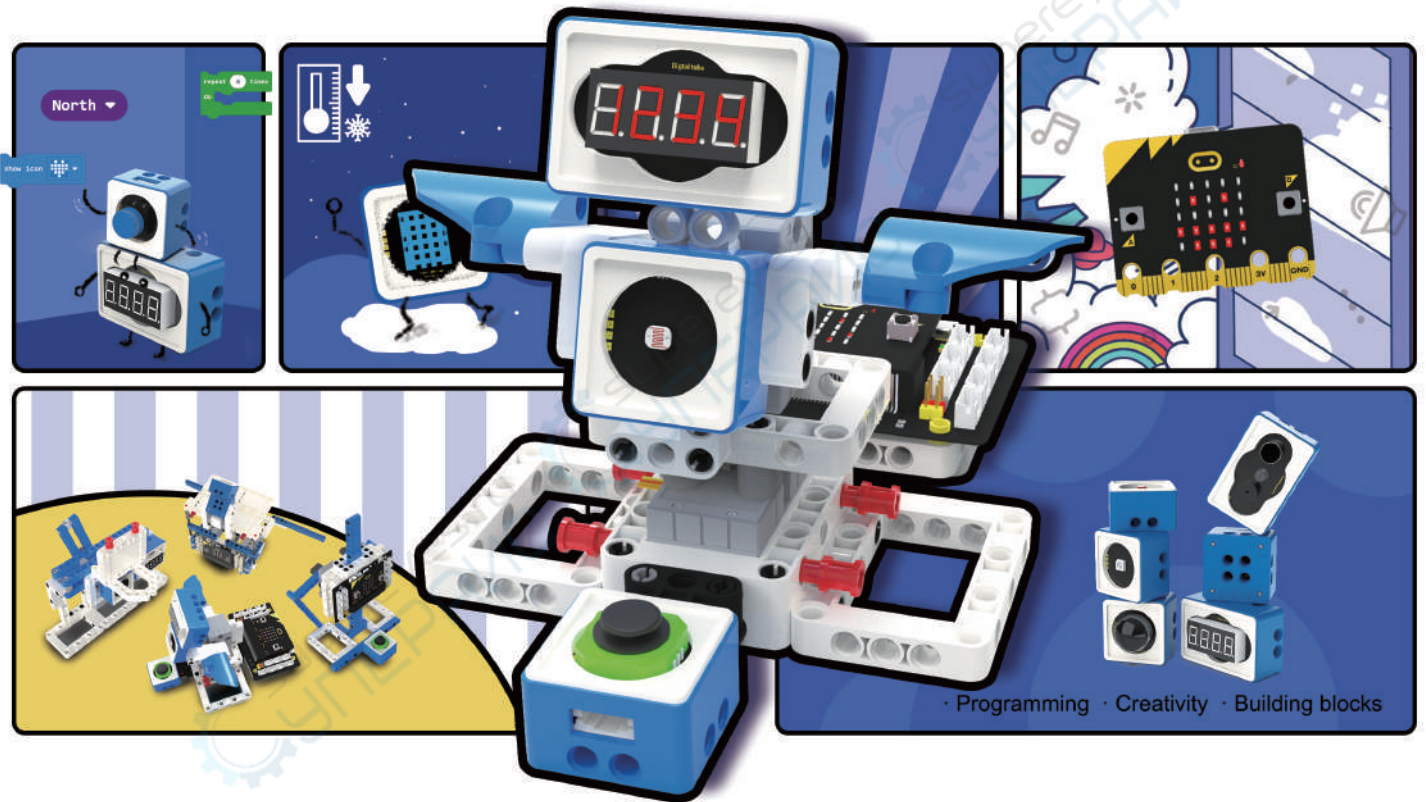


# WOM Sensor Kit

## For BBC Micro:bit

### 说明书/Manual



①使用前请仔细阅读本说明书

①Please read this manual carefully before use

②本公司保留说明书解释权

②Our company reserves the right of interpretation  
for this manual

③产品外观请以实物为准

③Product appearance, please prevail in kind

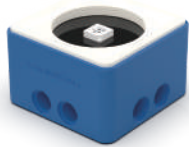
④阅后请妥善保管

④Please keep the manual  
properly after reading

# WOM Sensor Kit

## For BBC Micro:bit

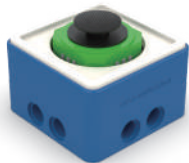
### Packing list



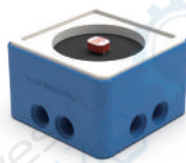
RGB module



Button module



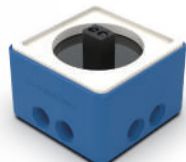
Rocker module



Photosensitive module



Temperature and humidity module



Infrared module



Human body infrared sensor module



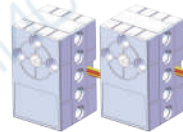
Color recognition module



Ultrasonic module



Digital tube module



Building block servo\*2



PH2.0 cable \*10  
USB data cable \*1



Microbit sensor expansion board



Micro:bit (optional)





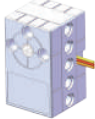


Block package A



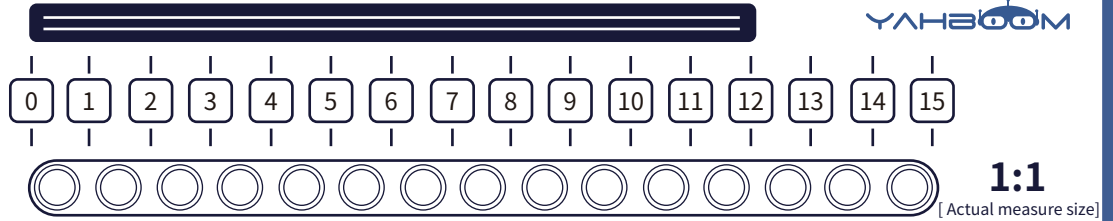
Block package B

# Module introduction








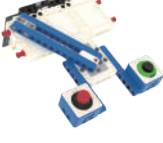


Name	Description	Basic course	Advanced course	Creativity course
 <p>RGB module</p>	It can be controlled to display any color.	1.RGB module	1.Table lamp 2.Rocker control light 3.Emergency light	6.Automatic door 10.Color sorter
 <p>Button module</p>	It can be used for button control, answering devices or other projects.	2.Button module	1.Table lamp 9.Smart wiper	3.Lifting platform 5.Moving basket 7.Sunflower
 <p>Rocker module</p>	It can output the analog value of x axis and Y axis, realize rocker control.	3.Rocker module	2.Rocker control light 9.Smart wiper 10.Rotating range-finder	3.Lifting platform 7.Sunflower 9.UFO catcher
 <p>Photosensitive module</p>	It can sense the light intensity of the current environment.	4.Photosensitive module	3.Emergency light	7.Sunflower
 <p>Servo</p>	The rotation range of this servo is 0°~360°.	5.Servo	9.Smart wiper 10.Rotating range-finder	1.Running box 2.Temperature-humidity monitor 3.Lifting platform 4.Interactive box 5.Moving basket 6.Automatic door 7.Sunflower 8.Flying penguin 9.UFO catcher 10.Color sorter

Name	Description	Basic course	Advanced course	Creativity course
 <p>Temperature and humidity module</p>	Integrated DHT11 temperature and humidity sensor, with small size and stable performance.	6.Temperature and humidity module	8.Thermometer	2.Temperature-humidity measurement
 <p>Ultrasonic module</p>	It integrates an ultrasonic transmitter and receiver, which can use ultrasonic to measure distance.	7.Ultrasonic module	5.Hand-held rangefinder 10.Rotating rangefinder	8.Flying penguin
 <p>Digital tube module</p>	The internal integrated chip of the module can directly drive the 4bit digital tube for display through I2C.	8.Digital tube module	5.Hand-held rangefinder 8.Thermometer 11.Piggy bank	5.Moving basket 7.Sunflower
 <p>Human body infrared sensor module</p>	It adopts the principle of pyroelectricity, once some one enters the detection area, the pin will output a high level signal.	9.Human body infrared sensor module	6.Human body warning device	1.Running box 6.Automatic door
 <p>Color recognition module</p>	It can recognize the RGB values of different colors to determine the color.	10.Color recognition module	7.Color recognition	10.Color sorter
 <p>Infrared module</p>	With a pair of diodes, it can judge that there are no obstacles around by transmitting and receiving signals.	11.Infrared module	4.Infrared warning device 11.Piggy bank	4.Interactive box 5.Moving basket

## Building block ruler



## Building models introduction

Building models	Name	Description	Building models	Name	Description
	Table lamp	Control table lamp by button.		Human body warning device	Detect a moving human body.
	Rocker control RGB light	Control RGB light by rocker.		Color recognition	Different colors are recognized and displayed through RGB light.
	Emergency light	According to the external environment light intensity to control RGB light.		Thermometer	Detect the temperature of the current environment.
	Infrared warning device	Detect obstacles by infrared light.		Smart wiper	The wiper is controlled by the rocker to move, or you can press the button to make the wiper work automatically.
	Hand-held rangefinder	A simple rangefinder.		Rotating rangefinder	Measure the distance of obstacles in front on different direction through rocker control.

**Building models**
**Name**
**Description**

**Piggy bank**

It can count and display the number of coins in the piggy bank.


**Running box**

When the human infrared sensor detects human movement around, the box will move forward.


**Temperature-humidity measurement**

Display the current temperature and humidity, and you can also change its shape.


**Lifting platform**

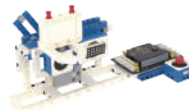
The height can be controlled by the rocker, or press button to enter voice control mode, and its height can be controlled by the sound.


**Interactive box**

Every time you change the position of the brick bar, it will return to its original position. After many times, it will randomly trigger the brick bar to strike several times.


**Color sorter**

It can sort blocks in three colors (red, green and blue).

**Building models**
**Name**
**Description**

**Moving basket**

A movable shooting counter, the speed of movement is controlled by users.


**Automatic door**

When the human body approaches, the door is automatically opened, and it will play music and the light is turned on at the same time.


**Sunflower**

The digital tube displays the light intensity. You can use the rocker to control the photosensitive module to move up, down, left, and right, or press the button to start the follow light mode. After detection, the servo will make the photosensitive sensor stay at the strongest angle of the current lighting environment.


**Flying penguin**

Penguins can flap their wings to simulate a flying state. The flapping speed of the wings changes with the distance of the obstacle ahead.


**UFO catcher**

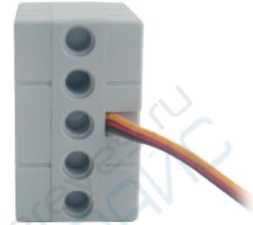
Control the left and right movement of the UFO Catcher and the gripping and loosening of the clip by rocker.

## First Trial

Tutorial link:

[www.yahboom.net/study/WOM-Sensor-Kit-microbit](http://www.yahboom.net/study/WOM-Sensor-Kit-microbit)

1. Enter above link, click [**Assembly and servo calibration**]---[**servo calibration**]. Download the hex file we provided, and complete the calibration of the servo.
2. Assemble the building blocks according to our steps.
3. Connect the sensor module and expansion board according to the wiring diagram.
4. View a single course and download the hex file we provided to the Micro:bit board through the USB data cable.
5. View experimental phenomena.



Servo direction display diagram

## Tips:

1. When using the related gameplay of the servo, you need to use a dual-head micro USB data cable to connect to the computer, board and the expansion board, otherwise only the board will not be able to drive the servo, and only the expansion board will not be able to download the program.
2. Before assembling the building blocks, you need to download the servo calibration code to initialize the servo to a fixed angle. If the servo is not calibrated before use, it is easy to jam the servo during use, causing a stall and burn the servo.
3. When assembling, pay attention to the installation direction of the servo. The direction of the servo can be determined through the line of the servo. Otherwise the angle of driving the servo will be reversed after running the program. In severe cases, the servo will be blocked or even stuck, and the servo will be damaged.

## Safety instructions

1. This product contains small accessories, please prohibit the use of children under three years old, the use of this product is 8 years old and above, children should be used under adult supervision.
2. Do not touch the servo shaft and related structures when the it's rotating.
3. Do not touch the pin headers on the expansion board with your hands.
4. Do not reverse the positive and negative poles of the power supply of this product.
5. It is strictly forbidden to modify and weld the circuit of this product by yourself.
6. Do not soak or rinse the product with liquid.
7. Do not place this product in a strong magnetic field, and keep it away from magnetic equipment.
8. Do not use this product in high temperature and dust environment, and keep this product away from fire.

9. Do not put the accessories contained in this product in your mouth, and be careful to prevent children from swallowing small parts in the kit.

10. Do not hit, throw, or needle the product, and please avoid dropping, squeezing, or bending the product.

11. Do not expose this product to a corrosive environment, and it is strictly forbidden to use other chemical liquids to clean this product.

12. Please strictly follow the experimental wiring to prevent damage to the product.

## Disclaimer

①Unauthorized maintenance, misuse, collision, negligence, abuse, liquid ingress, accident, alteration, incorrect use of non-product accessories, or tearing ,altering the logo;

②Damage caused by force majeure;

③Performance failure of this product due to human factors.

## Solemnly reiterate

Please read this specification carefully, especially the parameters, precautions, etc., to understand the use of the product and the scope of application. If the product is used incorrectly, the circuit is connected incorrectly, or the input power source, load function parameters and the performance parameters marked in the product specifications do not match, it is improper use. The product, load and peripheral links are damaged due to improper use. The company does not bear related responsibilities.

# WOM Sensor Kit For BBC Micro:bit

### Tutorial link

[www.yahboom.net/study/WOM-Sensor-Kit-microbit](http://www.yahboom.net/study/WOM-Sensor-Kit-microbit)

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