For more add-on packs and building instructions, please visit:

http://learn.makeblock.com/en/mbot-add-on-packs/

We appreciate your opinions about our products, please contact us with your suggestion at:

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Tel: 0755-2639 2228

Address：4th Floor, Building C3, Nanshan iPark, No.1001 Xueyuan Avenue, Nanshan District, Shenzhen, Guangdong Province, China

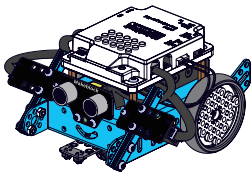f :@Makeblock   :@Makeblock   : +Makeblock

Makeblock
Construct Your Dreams

mBot Add-on Pack
# Interactive Light & Sound

Contents

Introduction to product

mBot interactive light & sound pack is a 3-in-1 add-on pack. With the parts in the pack, you can build out three robots based on mBot : "light chasing robot", "intelligent desk light" and "scorpion robot".


Light chasing robot:
It detects the light intensity around mBot via two light sensors on each side. When the light intensity on the left side is greater than that on the right side, the robot will turn left; when the light intensity on the right side is greater than that on the left side, the robot will turn right; otherwise, the robot will go straight.
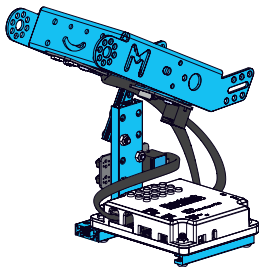
Intelligent desk light:
By changing the building configuration, mBot can turn into an "intelligent desk light". The light has two operating modes: touch mode in which the light brightness can be regulated by touching the line follower sensor with fingers, and voice control mode, in which the sound intensity in the surrounding area has to be sensed, and when the intensity is large, the light will come on, like the voice-activated light at the stairway in our daily life.
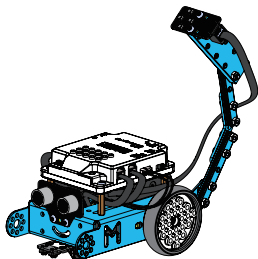
Scorpion robot:
Add mBot with a vivid "tail", enabling it to look like a scorpion. In this case, by adding an arc tail at the rear part of mBot, the center of gravity of the robot is changed, thus making it easier for the mBot to raise its head.

Parts list

2×	Me Light Sensor	2×	Beam 0808-072-Blue
1×	Me RGB LED	2×	Beam 0824-080-Blue
1×	Me Sound Sensor	1×	Plate 45°-Blue
2×	RJ25 cable-35cm	4×	Plastic Spacer 4×7×3mm
1×	M5+M7 Wrench		

Screws and nuts (1:1 Scale)

9×	M4 Nut	
4×	M4×8mm Screw	
9×	M4×14mm Screw	
5×	M4×22mm Screw	

Tool tips

Phillips screw
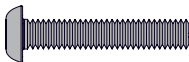
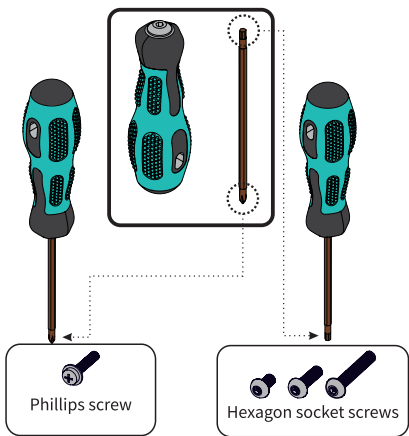Hexagon socket screws
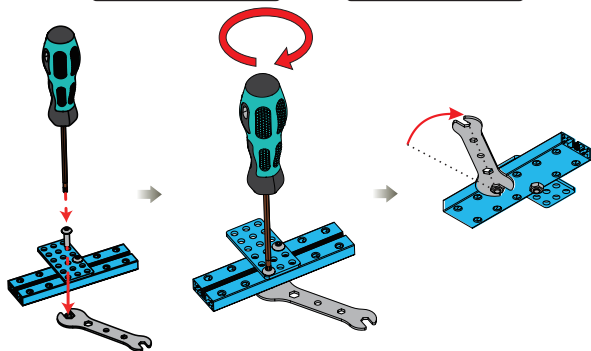
Fix the screws forcibly as shown

Fix the nuts forcibly as shown

Me Light Sensor

The light sensor is developed based on the principle of semiconductor's photoelectric effect. It can be used to detect the light intensity in the surrounding area and determine the light difference on different color surfaces. Moreover, it can also be used to make some items interacted with light, like intelligent dimming clearance light and intelligent light chasing robot. The module interface is in black, indicating it is an analog signal interface. The sensor module is connected to the black interface on the mainboard.
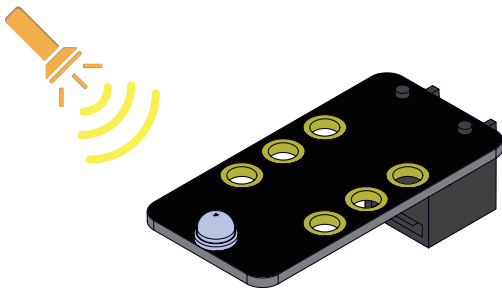
Technical specification:

Operating voltage: 5V DC

Operating temperature: -30℃～70℃
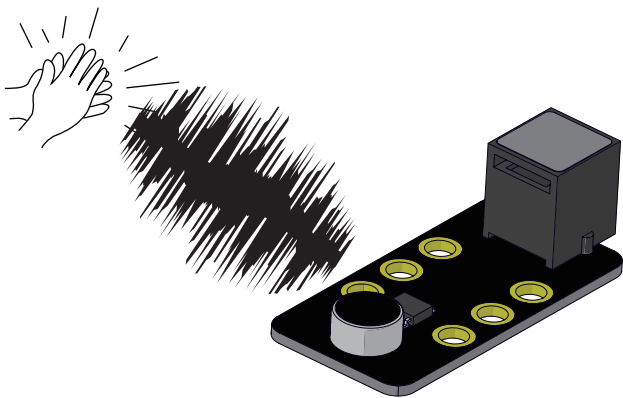
Module size: 52 x 24 x 18 mm (L x W x H)

Control method: single analog interface

Analog output : (> 500) when exposed to sunlight; (0 ~ 100) in the night; (100 ~ 500) under indoor lighting

Me Sound Sensor

The sound sensor can be used to detect the sound intensity in the surrounding area, empowering the robot with "listening" capacity. Such sensor is developed based on microphone, and its core component is LM2904 low power amplifier. You can use this sensor to make some interactive items, like voice operated switch, intelligent voice-activated light and robot dancing with music rhythm.

Technical specification:

Operating voltage: 5V DC

Microphone sensitivity (1 Khz): 50-54 dB

Module size: 52 x 24 x 18 mm (L x W x H)

Control method: single analog interface

Analog output: (> 250) in noisy environment; (100 ~ 250) under quiet condition

Me RGB LED

The colored Me RGB LED module includes four RGB LEDs with adjustable full color gamut. For each LED, its color is determined by the value of red (R), green (G) and blue (B), and the LED itself is characterized by highlight and adjustable brightness, realizing flowing water, flashing, rainbow light and other effects. The module interface is in yellow, indicating single digital interface control is adopted, and it must be connected to the yellow interface on the mainboard.
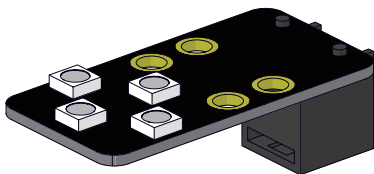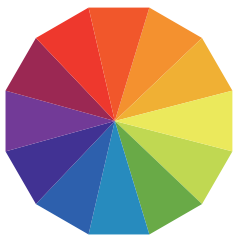
Technical specification:

Operating voltage: 5V DC

Number of light: 4 x RGB LED

Maximum current: 60mA for each, totally 240mA
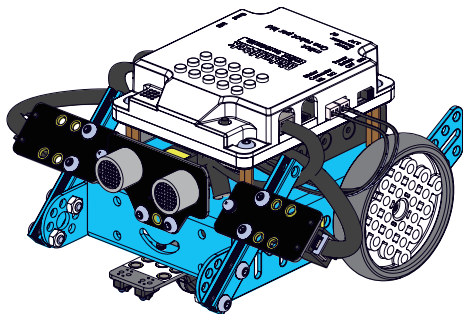
Light model: WS2812-4

Brightness range: 0~255

Control method: single digital interface

Operating temperature: -25～+80°C

Angle of visibility: >140°

Module size: 52 x 24 x 18 mm (L x W x H)

mBot Interactive Light & Sound Add-on Pack – Light Chasing Robot

Function description:

It detects the light intensity around mBot via two light sensors on each side. When the light intensity on the left side is greater than that on the right side, the robot will turn left; when the light intensity on the right side is greater than that on the left side, the robot will turn right; otherwise, the robot will go straight.
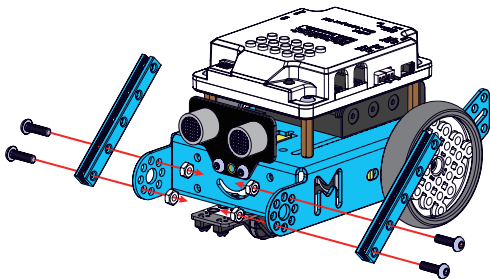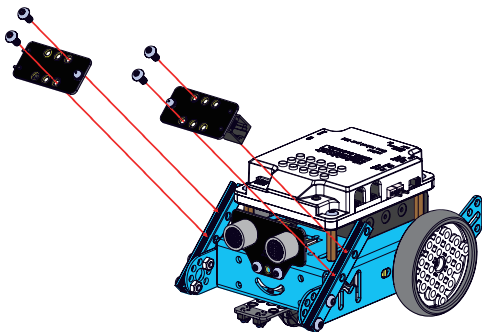
Product size

166.00mm

96.59mm

168.00mm

Building steps

1
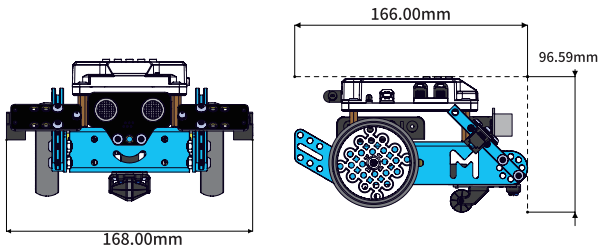
Beam 0808-072-Blue ×2
M4×14mm Screw ×4
M4 Nut ×4

2

Me Light sensor ×2
M4×8mm Screw ×4

3 Assembled diagram

Right light sensor

Left light sensor

Left wheel (left motor)

4 Wiring diagram

Right light sensor (Port4)

Left light sensor (Port3)

Me line follower sensor

Me ultrasonic sensor

Right motor

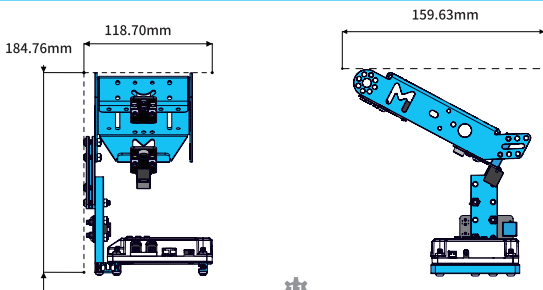Left motor
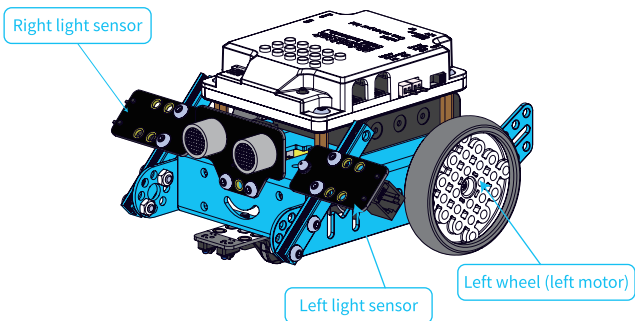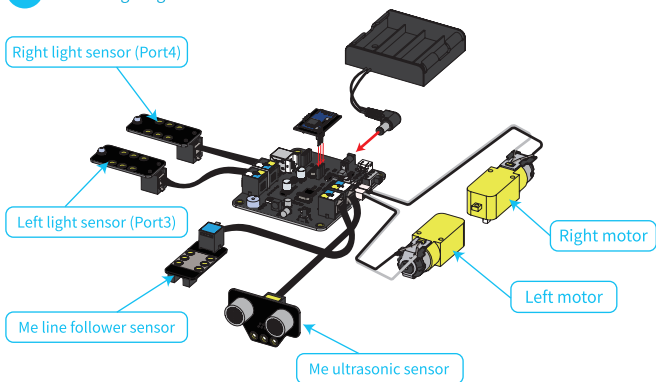
Please follow page 20 for programming
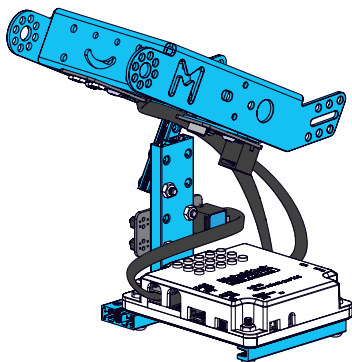
mBot Interactive Light & Sound Add-on Pack – Intelligent Desk Light
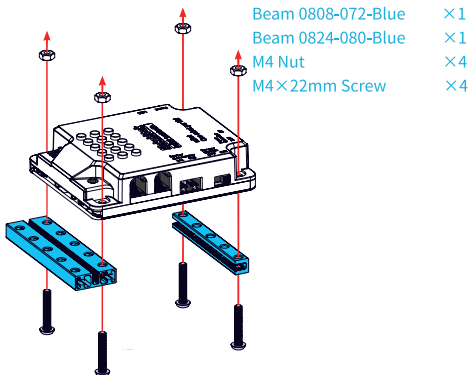
Function description

By changing the building configuration, mBot can turn into an "intelligent desk light". The light has two operating modes: touch mode in which the light brightness can be regulated by touching the line follower sensor with fingers, and voice control mode, in which the sound intensity in the surrounding area has to be sensed, and when the intensity is large, the light will come on, like the voice-activated light at the stairway.
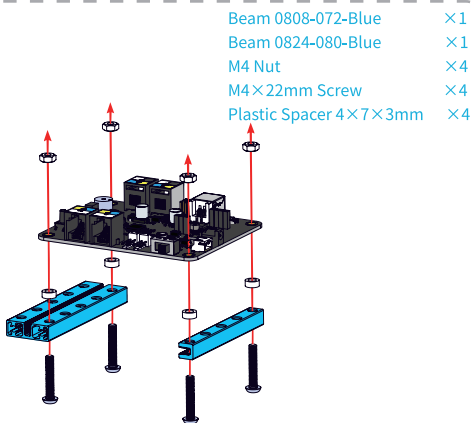
Product size

184.76mm

118.70mm

159.63mm

Building steps

1

Beam 0808-072-Blue	×1
Beam 0824-080-Blue	×1
M4 Nut	×4
M4×22mm Screw	×4

Note:
Some parts in this building example come from mBot, so you need to disassemble mBot first.

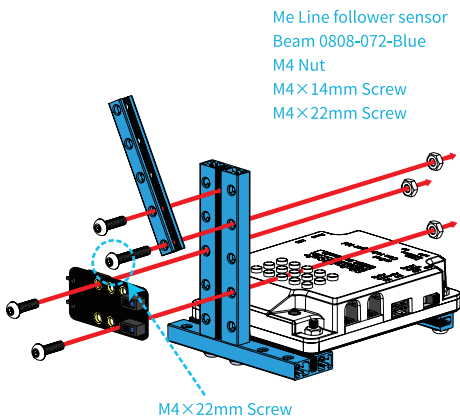|	
Beam 0808-072-Blue	×1
Beam 0824-080-Blue	×1
M4 Nut	×4
M4×22mm Screw	×4
Plastic Spacer 4×7×3mm	×4

Note:
If your mBot is in version v1.0 (without plastic protective case), please refer to this diagram for installation.

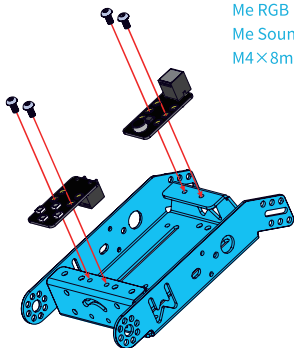**2**
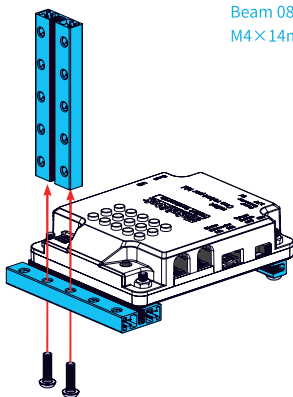
Beam 0824-080-Blue ×1
M4×14mm Screw ×2

3

Me Line follower sensor ×1
Beam 0808-072-Blue ×1
M4 Nut ×3
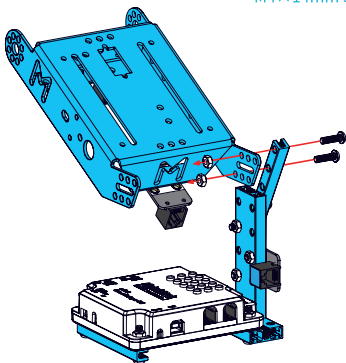M4×14mm Screw ×3
M4×22mm Screw ×1

M4×22mm Screw

4

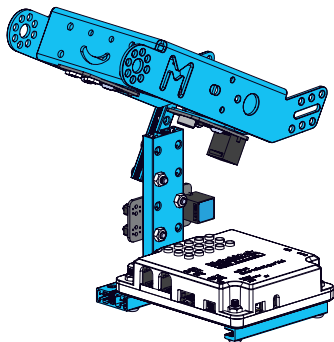Chassis ×1
Me RGB LED ×1
Me Sound Sensor ×1
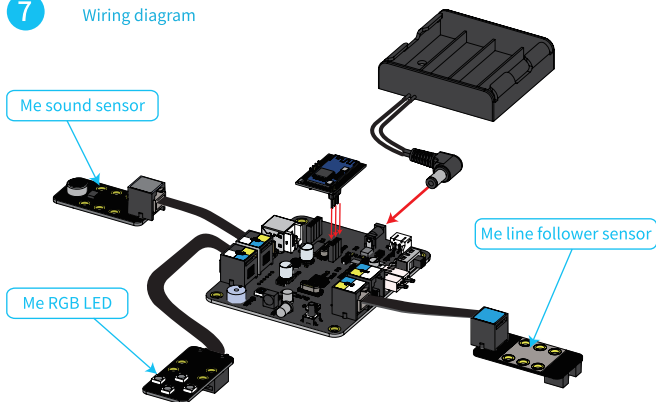M4×8mm Screw ×4

5

M4 Nut ×2
M4×14mm Screw ×2

6 Assembled diagram

7 Wiring diagram

Me sound sensor
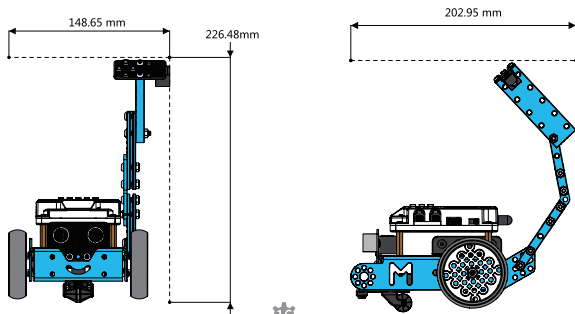
Me line follower sensor

Me RGB LED

mBot Interactive Light & Sound Add-on Pack – Scorpion robot
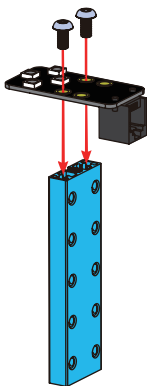
Function description

Add mBot with a vivid "tail", enabling it to look like a scorpion. In this case, by adding an arc tail at the rear part of mBot, the center of gravity of the robot is changed, thus making it easier for the mBot to raise its head.
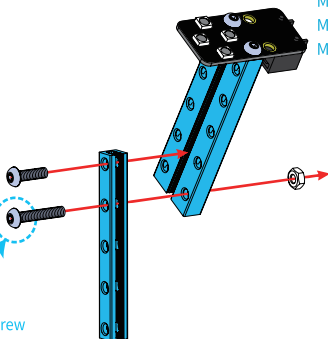
Product size

Building steps

1

Beam 0824-080-Blue	×1
Me RGB LED	×1
M4×8mm Screw	×2

2

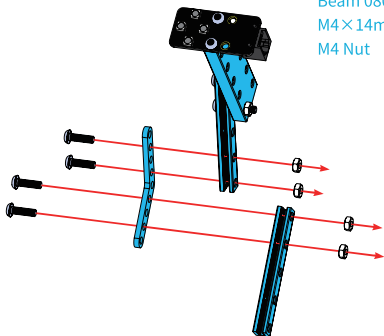|	
Beam 0808-072-Blue	×1
M4 Nut	×1
M4×14mm Screw	×1
M4×22mm Screw	×1

M4×22mm Screw

3
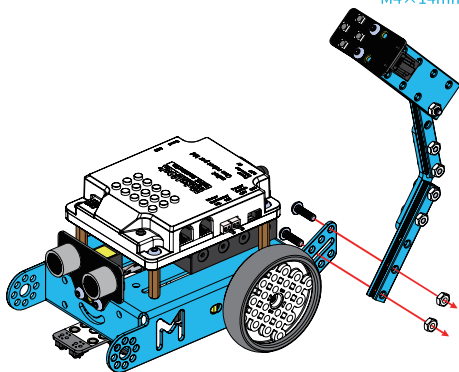
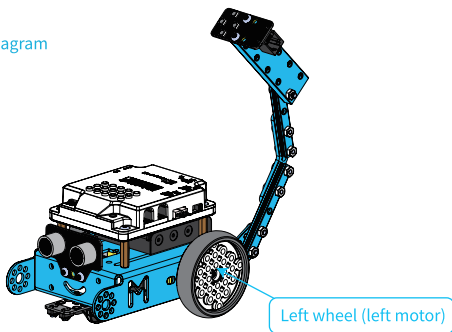Plate 45°-Blue ×1
Beam 0808-072-Blue ×1
M4×14mm Screw ×4
M4 Nut ×4

4

M4 Nut ×2
M4×14mm Screw ×2

5 Assembled diagram
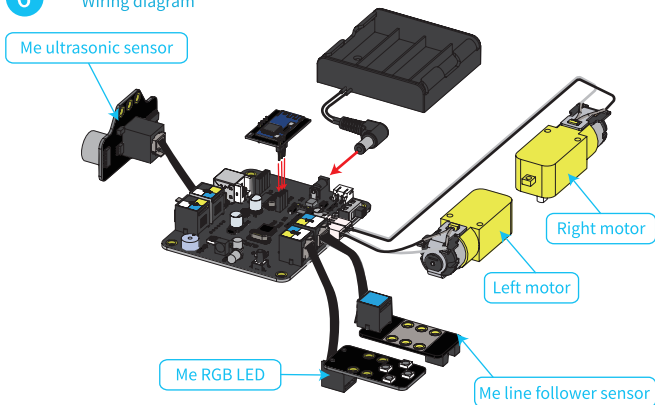

Left wheel (left motor)

Note:
When you use a lithium battery to power mBot, you need to remove the lithium battery from the battery shell and fix it to the back of mBot with Velcro, so as to ensure the center of mBot's gravity moves backwards.

6 Wiring diagram

Me ultrasonic sensor

Right motor

Left motor

Me RGB LED

Me line follower sensor

mBlock Programming

mBot supports mBlock programming, mBlock download link:
http://www.mblock.cc/download

We have provided you with mBot add-on pack case programs ; to download the case programs please visit:
http://learn.makeblock.com/en/mbot-add-on-packs/

After the download is completed, open the case programs, connect the mBot to your computer, and upload the program to the mCore. Then you can control your mBot!

APP control

MakeBlock APP has provided control panels for mBot add-on pack which allow you to quickly control your mBot with a mobile device using the preset consoles as follows:

1. To download the MakeBlock APP, please go to:
http://learn.makeblock.com/en/makeblock-app/

2. Bluetooth connection. Connect the power and switch on the mBot, then turn on the MakeBlock APP and close to mBot . (If you have a program written on the mCore , first open the mBlock, choose Connect → Reset Default Program → mBot to restore the factory program.)

3. Select the corresponding control panel and start using your mBot !