DOBOT

Magician Lite Sensor Kit Specs

Types of interfaces

No.	Module	Communication mode	Interface	Note
1	Light sensor . Knob potentiometer . Sound sensor	ADC	Port3/Port4	Analog input
2	Joystick . Humiture sensor . Gesture sensor . Color sensor	I2C	Port1~Port6	Digital input
3	Micro servo	PWM	Port3 ~Port6	PWM input
4	LED module	Single-bus	Port1~Port6	-
5	PIR sensor . Dual button . Photoelectric switch	IO	Port1~Port6	General IO

Parameters and Sensor Module

1.Joystick

Introduction

The working principle of the joystick is similar to that of general joystick gamepad. The X and Y axes correspond to two 10K potentiometers respectively. When the joystick moves, it generates corresponding analog signal and outputs the offset value. The Z-axis is a button application.

Connection mode: connect to any green port of Magic Box (Port1~Port6)
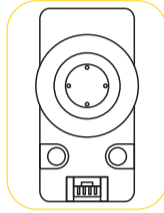Communication mode: I2C
Wiring Cable: Universal Sensor Cable
X/Y output value: 10~250
Z output value: 0: release; 1: press
Voltage: 5V
Current: 50mA

2.Dual Button

Introduction

The dual-button module provides two physical keys in different colors for operation. The module determines the status of keys by detecting the high/low level of input pins of different keys.
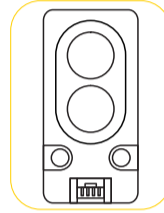
Connection mode: connect to any green port of Magic Box (Port1~Port6)
Communication mode: IO
Wiring Cable: Universal Sensor Cable
Voltage: 5V
Current: 50mA

3. PIR Sensor

Introduction

PIR sensor is a body infrared sensor. It belongs to passive pyroelectric infrared detector. It works by detecting the infrared radiation emitted or reflected by the human body or objects. When detecting infrared, it outputs high level and carries out a time delay (during which the high level is maintained and repeated triggering is allowed) until the triggering signal disappears (restoring low level).
Note: There is a two-second delay after detection is triggered.
Connection mode: connect to any green port of Magic Box (Port1~Port6)
Communication mode: IO
Wiring Cable: Universal Sensor Cable
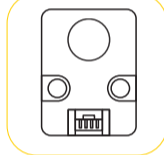Detection distance: 150cm
Delay period: 2s
Induction range: < 100°
Static current: < 60uA
Operating temperature:-20 ~ 80°C
Voltage:5V
Current: 50mA

4.Gesture Sensor

Introduction

Gesture sensor is a 3D gesture recognition sensor using I2C communication interface. It supports eight types of gesture recognition by default, and the maximum gesture update frequency can reach 240Hz. It has certain anti-ambient light interference ability. With strong stability, fast recognition speed, high accuracy and low power consumption (working current: 2.2mA), it is suitable for a variety of applications, including non-contact remote control, robot interaction, human-machine interaction games, and gesture lighting control.
Connection mode: connect to any green port of Magic Box (Port1~Port6)
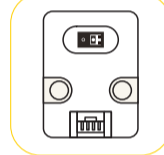Communication mode:I2C
Wiring Cable: Universal Sensor Cable
Support gestures: up, down, left, right, forward, backward, clockwise, counterclockwise
Effective recognition distance: 5cm~15cm
Voltage: 5V
Current: 50mA

5.Photoelect ric Sensor

Introduction

The photoelectric sensor is also called the photoelectric proximity switch.It detects the presence of the object through the connected circuit if there is an object shielding or reflecting the beam. The photoelectric sensor converts the input current into an optical signal on the transmitter, and the receiver detects the target object according to the intensity or presence of the received light. The L-shaped bracket made of aluminum alloy is used for fixing the photoelectric sensor so that the probe of the photoelectric sensor can be placed parallel to the table top.
Connection mode: connect to any green port of Magic Box (Port1 ~ Port6)
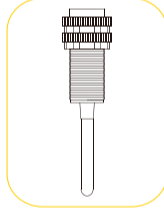Communication mode: IO
Wiring Cable: Already attached
Value range: 0 (no shield), 1 (with shield)
Standard detection environment: sunlight less than 10000LX, incandescent lamp less than 3000LX
Object to be detected: transparent or opaque object
Operating temperature:-25°C ~ 55°C
Response time: <2ms

6.Sound Sensor

Introduction

The sound sensor is used to detect the sound intensity of the surroundings. The greater the sound intensity it receives, the stronger the output signal and the greater the return value is.
Connection mode: connect to any green port of Magic Box (Port3 or Port4)
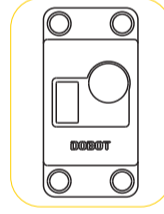Communication mode: ADC
Wiring Cable: Universal Sensor Cable
Value range: 0~1023
Sensitivity: (48dB ~ 52dB) @1kHz
Microphone impedance: 2.2k ohms
Microphone frequency: 16-20 kHz
SNR S/N: 54dB

7.Humiture Sensor

Introduction

The humiture sensor is used to detect temperature and humidity of current environment.
Connection mode: connect to any green port of Magic Box (Port1~Port6)
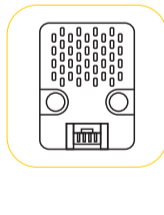Communication mode: I2C
Wiring Cable: Universal Sensor Cable
Temperature range: 0~60°C/±1°C
Humidity range: 10~90% RH ± 5% RH
Voltage: 5V
Current: 50mA

8.Color Sensor

Introduction

The color sensor module is used to identify the color of the object and return a set of RGB values or color detection results.
Connection mode: connect to any green port of Magic Box (Port1 ~ Port6)
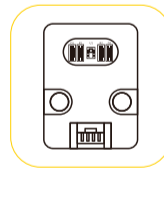Communication mode: I2C
Wiring Cable: Universal Sensor Cable
Color detection result: 0: no color; 1: red; 2: green; 3: blue; 4: yellow; 5: black; 6: white
Color value RGB: 0~200 (a larger value indicates a darker color)
Voltage: 5V
Current: 50mA

9.LED Module

Introduction

LED module contains three RGB LED lights, which can be controlled independently.
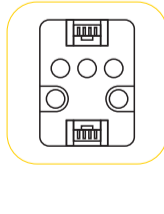Connection mode: connect to any green port of Magic Box (Port1 ~ Port6)
Communication mode: monobus
Wiring Cable: Universal Sensor Cable
RGB range: 0~255
Brightness range: 0~100%
Voltage: 5V

10.Light Sensor

Introduction

The Light sensor contains photosensitive resistance. The resistance value decreases with the increase of the incident light intensity. Based on this, the change of its voltage is detected and the light intensity data is obtained through AD conversion.
Connection mode: connect to Magic Box green port (Port3 or Port4)
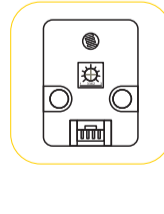Communication mode: I2C
Wiring Cable: Universal Sensor Cable
Color detection result: 0: no color; 1: red; 2: green; 3: blue; 4: yellow; 5: black; 6: white
Color value RGB: 0~200 (a larger value indicates a darker color)
Voltage: 5V
Current: 50mA

11.Knob potentiometer

Introduction

Knob potentiometer is a resistance element with a maximum resistance of 10K and the resistance value can be adjusted by the knob rotation, It has three leads.
Output voltage: 0~2500mV
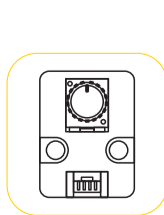Connection mode: connect to Magic Box green port (Port3 or Port4)
Communication mode: ADC
Wiring Cable: Universal Sensor Cable
Brightness return value: 0~407 (extreme fluctuation is normal)
Voltage: 5V
Current: 50mA

12.Micro servo

Introduction

For micro servo, yellow refers to signal cable, brown refers to ground cable, and red refers to 5V, The servo can control 180°rotation of micro servo. When using the micro servo, pay attention to the supply current and voltage to prevent the servo from being burnt.
Connection mode: connect to Magic Box green port (Port3~Port6)
Communication mode: PWM
Wiring Cable: Universal Sensor Cable
Servo speed: 0.1sec/60°/4.8V; 0.09sec/60°/6.0V
Torque: 1.6kg×cm/4.8V; 1.8kg×cm/6.0V
PWM frequency: 50Hz/0.5~2.5MS
Voltage: 4.8-6.0V
Non-load Current: 60mA