keyestudio

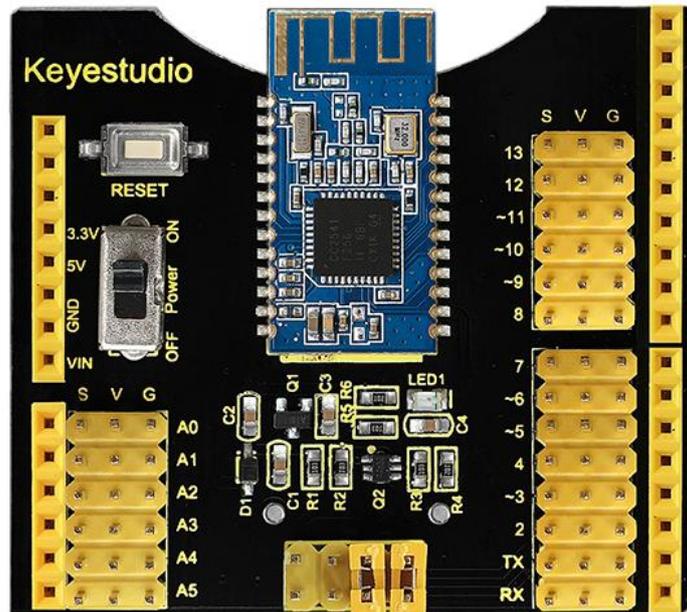## Keyestudio Bluetooth 4.0 Expansion Shield

Introduction

Keyestudio Bluetooth 4.0 expansion shield integrates sensor expansion board with HM - 10 Bluetooth 4.0. It is fully compatible with keyestudio UNO R3 control board, which can work only through stacking the expansion board on the keyestudio UNO R3 control board, easy and convenient. It extends all digital ports and analog ports of keyestudio UNO R3 control board in the form of steering gear sequence. A sensor only needs a universal 3P sensor cable, which is very simple and fast.

Expansion board with HM - 10 Bluetooth 4.0 can be used for the bluetooth communication, and toggle switch control the power supply for Bluetooth. There is a jumper cap set on the board, and the default jumper wire achieves the direct communications between bluetooth module and keyestudio UNO R3 control board serial port. If the jumper cap connects another two jumper wires, achieving a serial port communication needs the keyestudio UNO R3 control board to set up the virtual serial port, which needs that the digital port 2 is set to RX, and digital port 3 is set to the TX.

Specification

Bluetooth protocol: Bluetooth Specification V4.0 BLE

No byte limit in serial port Transceiving

In open environment, realize 100m ultra-distance communication with iphone4s

USB protocol: USB V2.0

Working frequency: 2.4GHz ISM band

Modulation method: GFSK(Gaussian Frequency Shift Keying)

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Transmission power: -23dbm, -6dbm, 0dbm, 6dbm, can be modified by AT command.

Sensitivity: ≤-84dBm at 0.1% BER

Transmission rate: Asynchronous: 6K bytes

                    Synchronous: 6k Bytes

Security feature: Authentication and encryption

Supporting service: Central & Peripheral UUID FFE0, FFE1

Power consumption: Auto sleep mode, stand by current 400uA~800uA, 8.5mA during transmission.

Power supply: 5V DC

Working temperature: －5 ~ +65 Centigrade

Sample Code

```
int val;
int ledpin=13;
void setup()
{
Serial.begin(9600);
  pinMode(ledpin,OUTPUT);
} void loop()
{ val=Serial.read();
if(val=='a')
  {
digitalWrite(ledpin,HIGH);
delay(250);
digitalWrite(ledpin,LOW);
delay(250);
  Serial.println("keyestudio");
}
}
```

Result

The keyestudio Bluetooth 4.0 expansion board is stacked on the keyestudio UNO R3 control board. After the power is turned on, burn the procedure and dial the toggle switch to power on HM-10 Bluetooth - 4.0.

Open APP HC-COM, click search device, select the device, device is connected; the LED on the Bluetooth module is on. Enter "a" in HC-COM, click send, Bluetooth APP will display keyestudio. Every time HC-COM sends an "a", the Pin13 LED on the main board blinks once.

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