RF module MUART0-B Wireless UART Transmission Module User Manual

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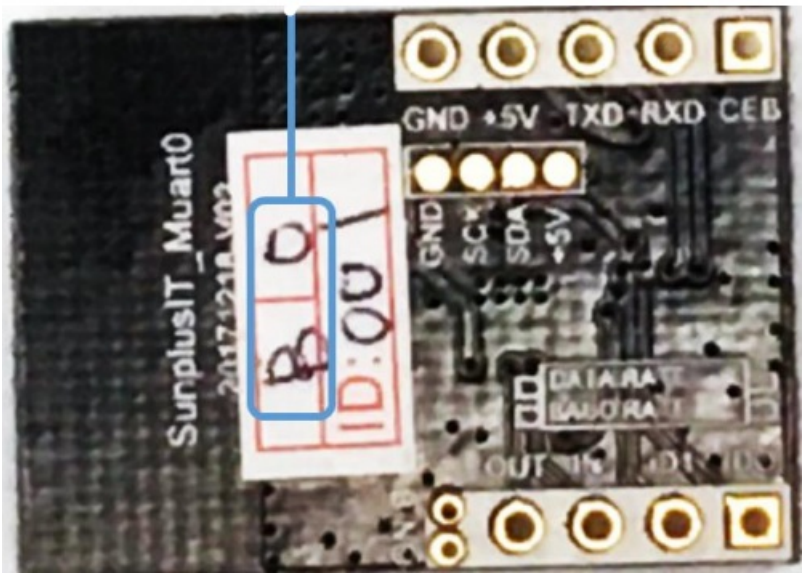
MUART0-B

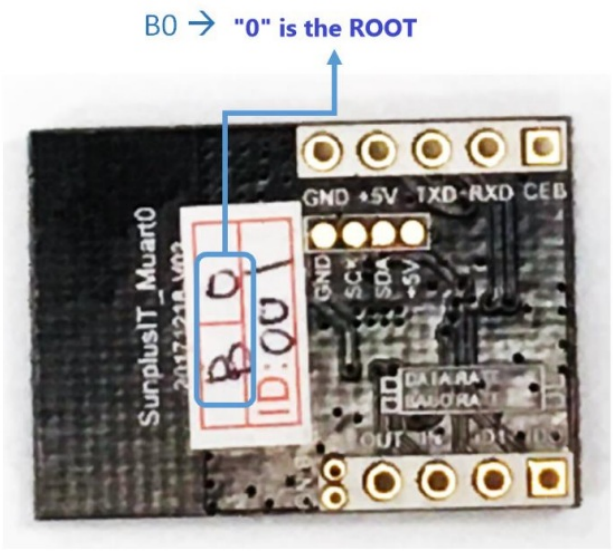
RF module MUART0-B Wireless UART Transmission Module

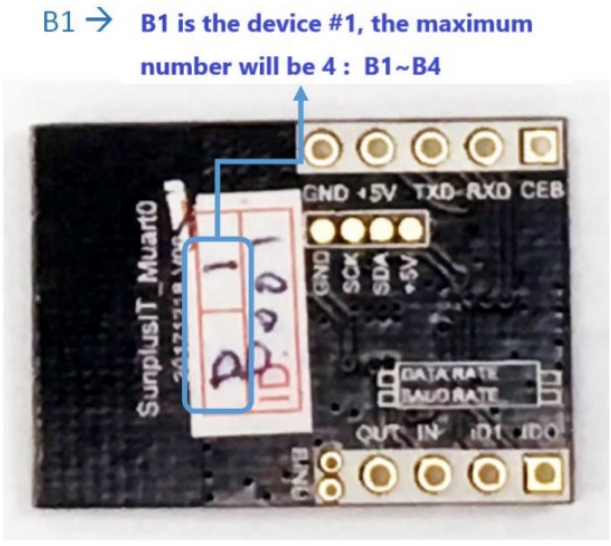


The MUART0-B Wireless UART Transmission Module is an easy-to-use module that instantly and painlessly upgrades wired UART to wireless UART transmission, in addition to being a set of 1/0 pins that allows you to eliminate the need for additional coding and hardware and have 10 switches that can be remotely controlled by each other to use.

Module appearance and dimension

The MUARTO-B-1-N module contains one piece of Root Terminal (number BO) and up to four devices (number B 1 – B4). both of which look the same, However, Root or Device can be identified by the label on the back (pictured below).





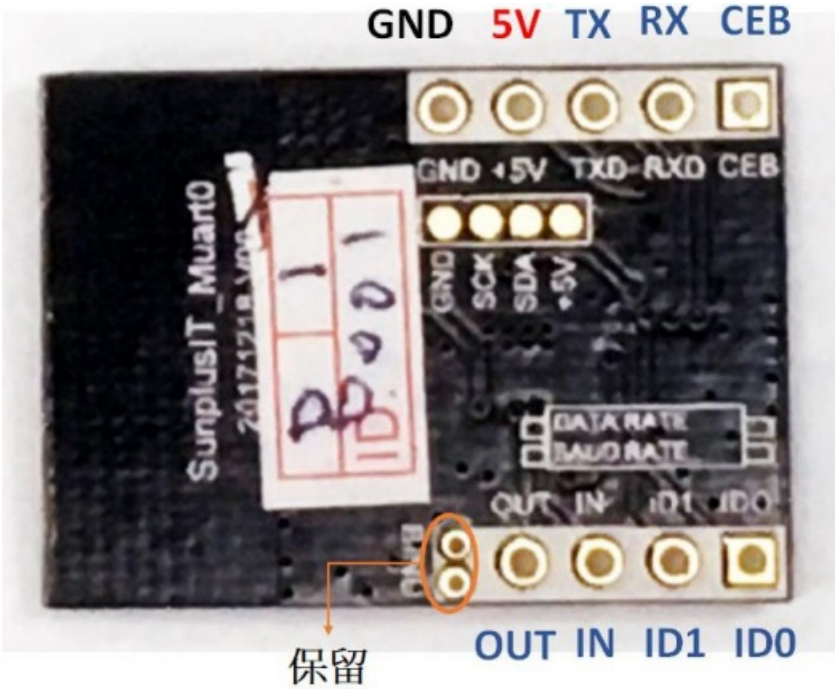
Module characteristics

1. **Operating voltage:** 3.3-5.5V
2. **RF Frequency:** 2400MHz-2480MHz
3. **Power consumption:** Transmits about 24 mA@ +5dBm and receives about 23mA.
4. **Transmit power:** +5dBm
5. **Transmission rate:** 250Kbps
6. **Transmission distance:** around 80 to 100m in the open space

7. **Baud rate:** 9,600bps
8. **Supports 1-to-1 or 1-to-multiple (up to four) transmission**

Pin definition

Left to right, top to bottom



- **GND** Ground
- **+5V5V** voltage input
- **The TX>** corresponds to the RX of the development board UART
- **The RX>** corresponds to the TX of the development board UART
- **THE CEB** CEB PIN should be connected to the ground (GNDI then the module will be now-on. This nin can be used as a power-saving mode control.
- **OUT** The output pin of l0 Port
- **IN** The input pin of 10 Port
- **ID1**, ID09selects which device to connect to via the HIGH/LOW combination of these two pins.

How to use

All types of development boards and MC Us that support the UART communication interface can use this module directly, and there is no need to install additional drivers or API programs.

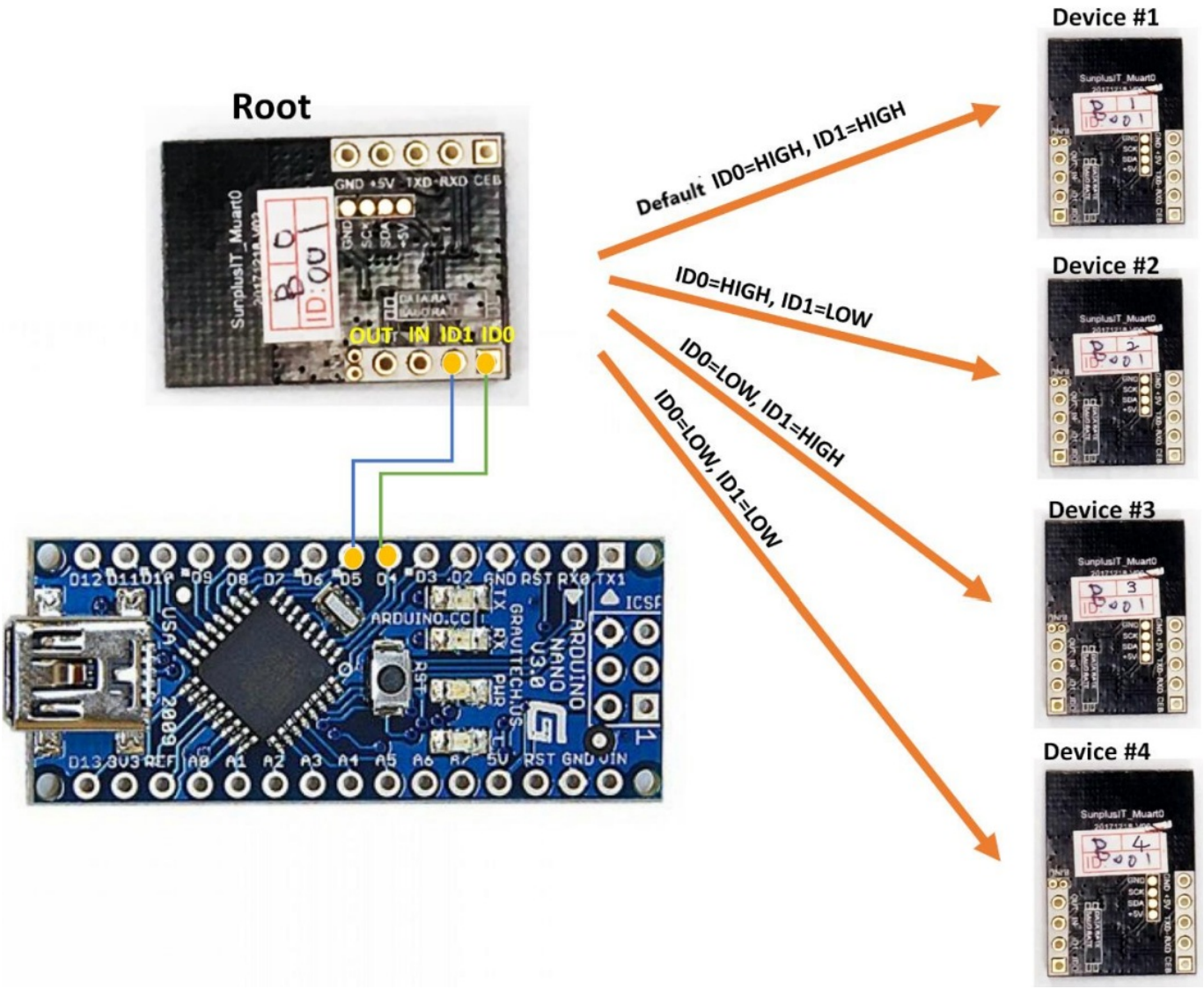
Select the Device number you want to connect to

The traditional wired TTL is transmitted in a 1-to-1 manner, and the MUART0-B wireless UART transmission The module additionally supports 1-to-multiple mode, and the default Root terminal (PO] is powered on with Device(B1] connection, if you have another numbered Device 1B2-B4], Different HIGH/LOW combinations can be sent on the Root side for ID0, ID1 pin to select the device number you want to connect to, the ID0 of the root side Please refer to the table below for ID1 number selection combinations.

	Device 1 (B1)	Device 2 (B2)	Device 3 (B3)	Device 4 (B4)
ID0 pin	HIGH	HIGH	LOW	LOW
ID1 pin	HIGH	LOW	HIGH	LOW

ID0, ID1 pin defaults to HIGH, or LOW if GND is received

You can refer to the corresponding table above to manually connect the GND line to ID0 or ID1 and let the Root terminal be fixed and specified Devices can also be connected to the program through the pin of the development board to send LOW/HIGH Signals to dynamically specify the Device to connect to. For example, in the figure below, Arduino Nano selects the Device to connect via the D4 and D5 pins.

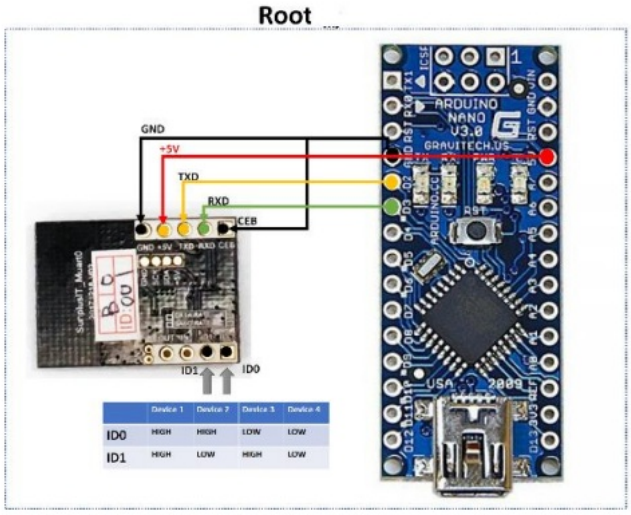


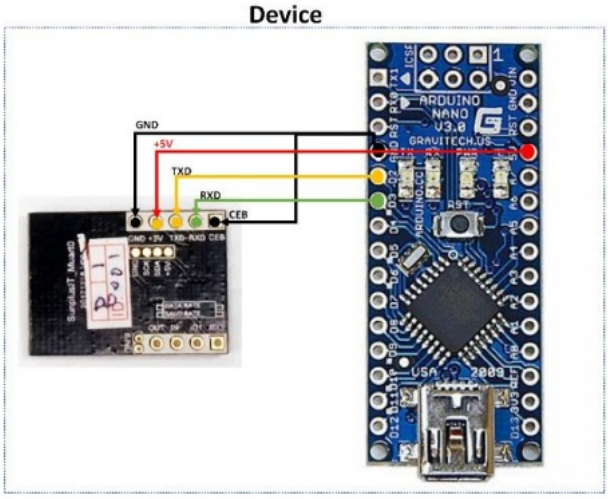
Transmit message

Once you've determined which device object to connect to, you can start transmitting messages. The following are three ways to directly dock Android and Raspberry Pi as examples:

Working with Arduino

In addition to using Arduino's hardware TX/RX ports directly, this module also supports software serials, so it can use software emulating UART to avoid occupying the physical UART interface. For example, the example below is to make the Arduino Nano's 2, and 3 pins to emulate the software serial port as UART RX and TX transmit and receive messages to each other, and other models of Arduino boards are also connected in the same way If you want to connect a specified device through the program, you can use Arduino's instruction digitalWrite to output LOW or HIGH to IDO, ID1 to make a connection to the specified device





Root-side transporter program example:

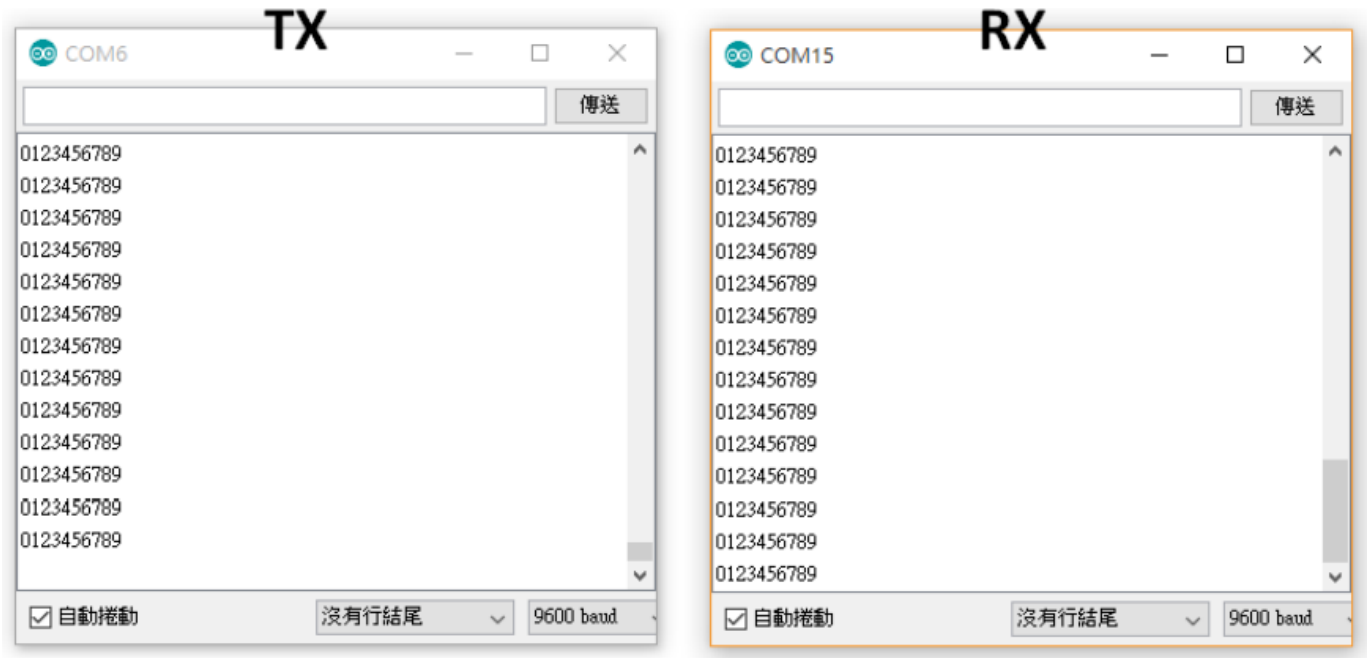
```
#include <SoftwareSerial.h>
SoftwareSerial mySerial(2, 3); // RX, TX

void setup() {
  Serial.begin(9600);
  mySerial.begin(9600);
}

void loop() {
  mySerial.print("0123456789");
  Serial.println("0123456789");
  delay(1000);
}
```

RX receiver program example:

```
#include <SoftwareSerial.h>
SoftwareSerial mySerial(2, 3); // RX, TX

void setup() {
  Serial.begin(9600);
  mySerial.begin(9600);
}
```

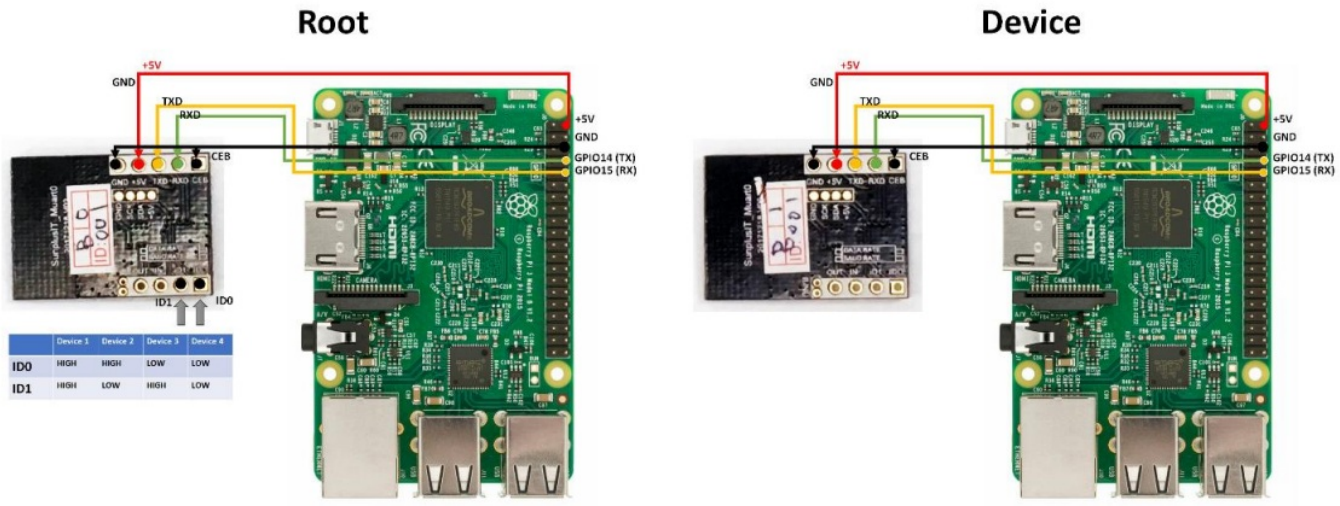
```
void loop() { // run over and over

  if (mySerial.available()) {
    Serial.println("");
    while (mySerial.available()) {
      Serial.print(char(mySerial.read()));
    }
  }

  delay(1000);
}
```

execute



Working with Raspberry Pi

Using this mod on the Raspberry Pi is also fairly easy! Connect each pin of this RF module to the corresponding RX/TX pin on the Raspberry Pi, and you can directly read and write to the RX/TX pin. It is used in the same way as a traditional UART. The following figure shows the connection method between the Raspberry Pi and the MUARTO-B Root module, the device side is almost the same but connection of ID0 and ID1 is not required.



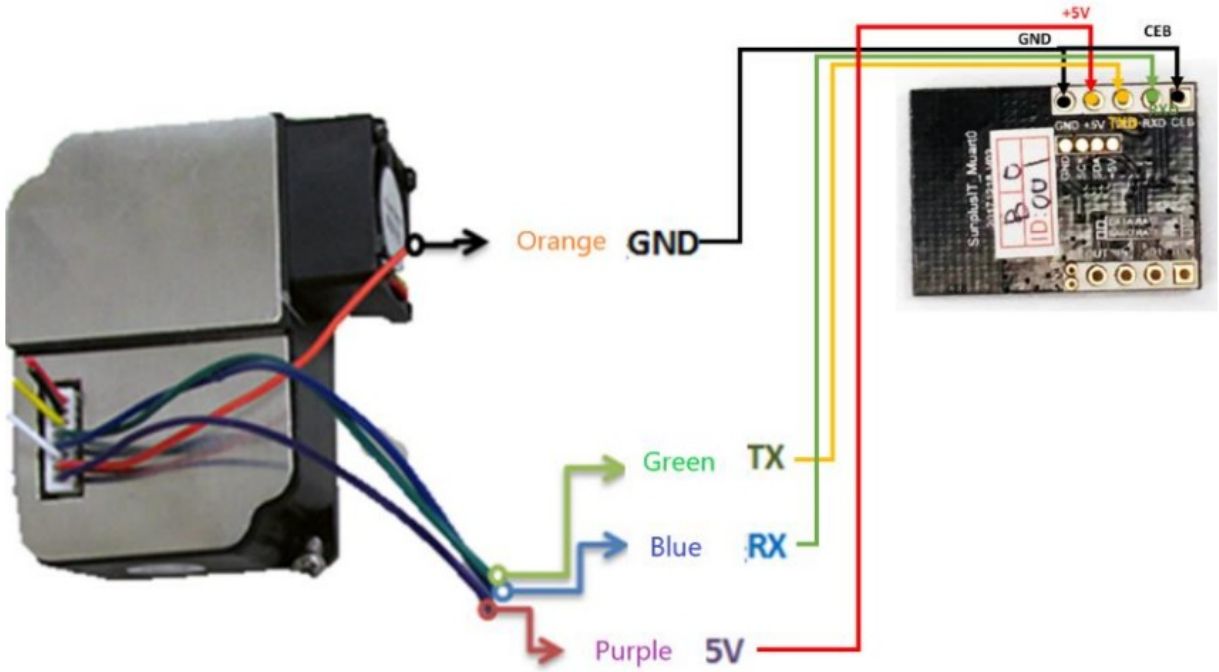
Example of the program:

Available for both the transmit and receive sides

```
#!/usr/bin/env python
import time
import serial

ser = serial. Serial(
        port='/dev/ttyS0',
        baudrate = 9600,
        parity=serial. PARITY_NONE,
        stopbits=serial. STOPBITS_ONE,
        bytesize=serial. EIGHTBITS,
        timeout=1
)
counter=0

while 1:
        #read data from UART
        x=ser.readline()
        print x
        #write data toUART
        ser.write('Write counter: %d \n'%(counter))
```

Directly connect to the sensor

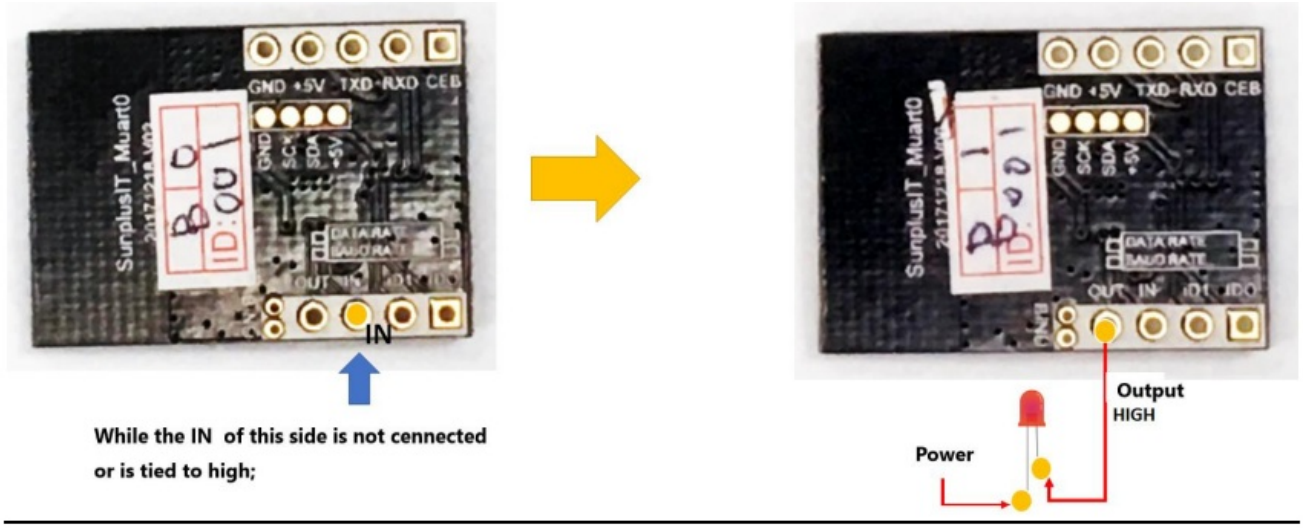
If your sensor supports the UART interface and the Baud rate is 9,600, you can connect it directly to this module quickly and painlessly upgrade to a wireless function sensor. The following 63 PM2.5 sensors is taken as an example, refer to the following connection method

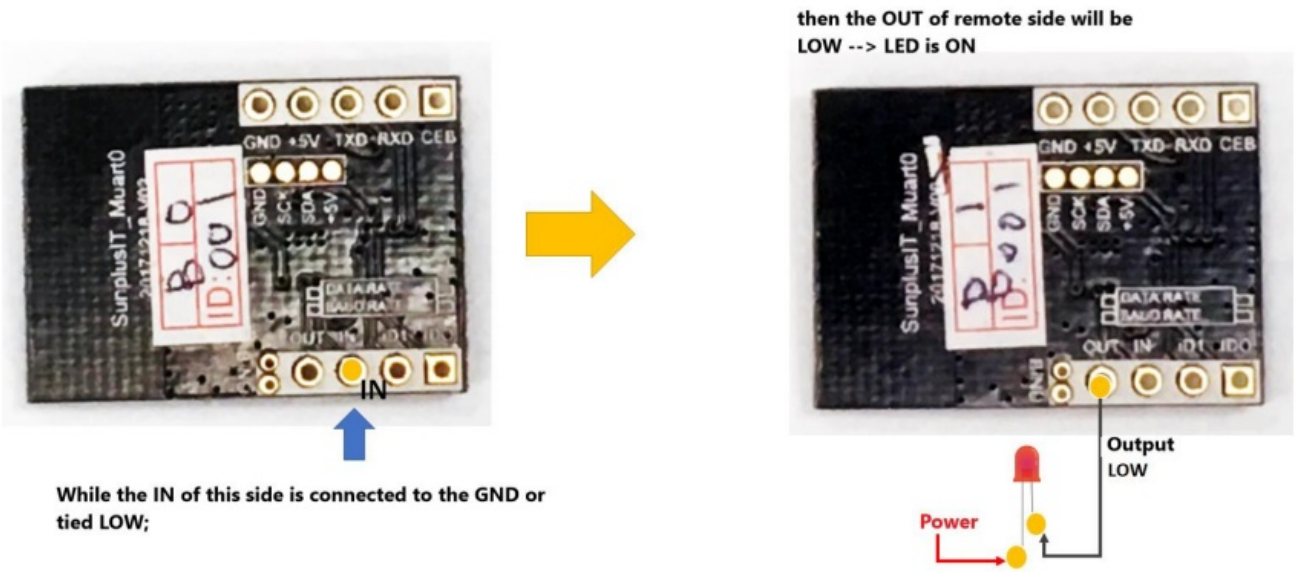


We can use a master board either Arduino or Raspberry Pi) and you can operate as normal wired UART mode to read the PM2.5 data from the G3. Congratulations! The G3 has been upgraded to have wireless transmission capabilities PM2.5 sensing module.

Use 10 Ports

The MUARTO-B module provides a set of l0 ports that allow you to transmit on/off commands wirelessly, and this set lo Ports are not limited to the transmission or receiving end of the module, and both ends can control each other. As long as you change the voltage of the IN pin at either end, you will change the output voltage of the out pin at the other end synchronously. Please refer to the following usage example to explain how to use 10 Port to remotely control the switch LED bulb.





Documents / Resources

	RF module MUART0-B Wireless UART Transmission Module [pdf] User Manual MUART0-B, Wireless UART Transmission Module, Transmission Module, MUART0-B, Module