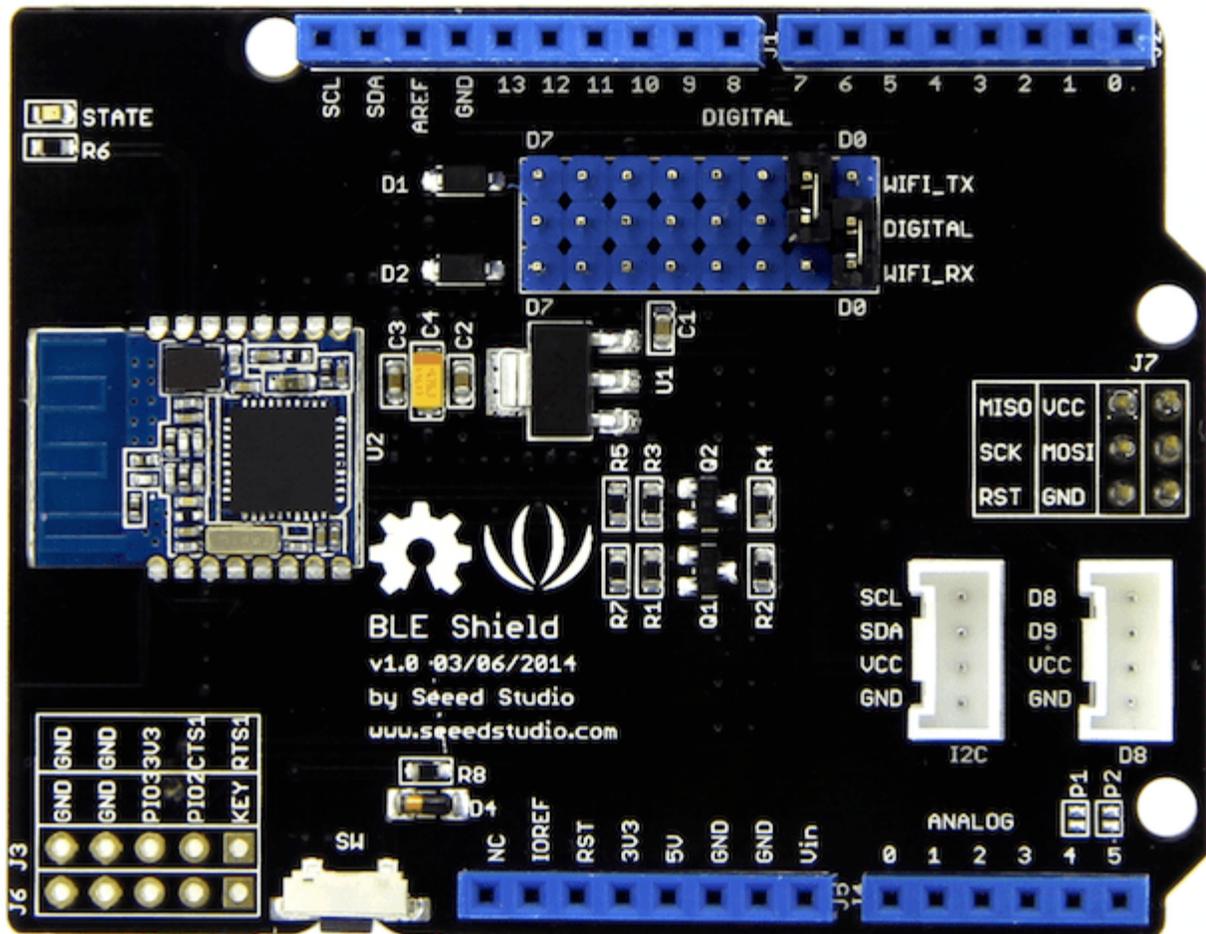


Seeed BLE Shield v1



This Seeed BLE Shield utilizes an [HM-11](#) module to provide your Arduino/Seeeduino with serial BLE function. It only takes two pins of the micro controller to communicate your device with this shield. With support for a BLE ComAssistant APK, this BLE Shield can talk to your mobile phone more easily without pairing. You can use it in many conditions, like robot controls or remote control equipment ,etc. We prepared an easy and convenient command set for this shield so that you can use neat and concise code to run the function.

Specifications

Specifications	Value
BT Version	Bluetooth Specification V4.0 BLE
Working Frequency	2.4GHz ISM band
Working Current	< 15 mA
Sourcing Current	< 30 mA
Sleeping Current	< 3 mA
Modulation Method	GFSK(Gaussian Frequency Shift Keying)
RF Power	-23dbm, -6dbm, 0dbm, 6dbm, can modify through AT Command AT+POWE
Speed	Asynchronous: 6K Bytes, Synchronous: 6K Bytes
Sensibility	≤-84dBm at 0.1% BER
Security	Authentication and encryption
Service	Central & Peripheral UUID FFE0,FFE1
Supply Power	5v
Working Temperature	-5 ~ +65 Centigrade
Size	68mm x 43mm
PIN Code	000000(by default)

Compatibility

We have produced a lot of extension board that can make your platform board more powerful, however not every extension board is compatible with all the platform board, here we use a table to illustrate how are those boards compatible with platform board.

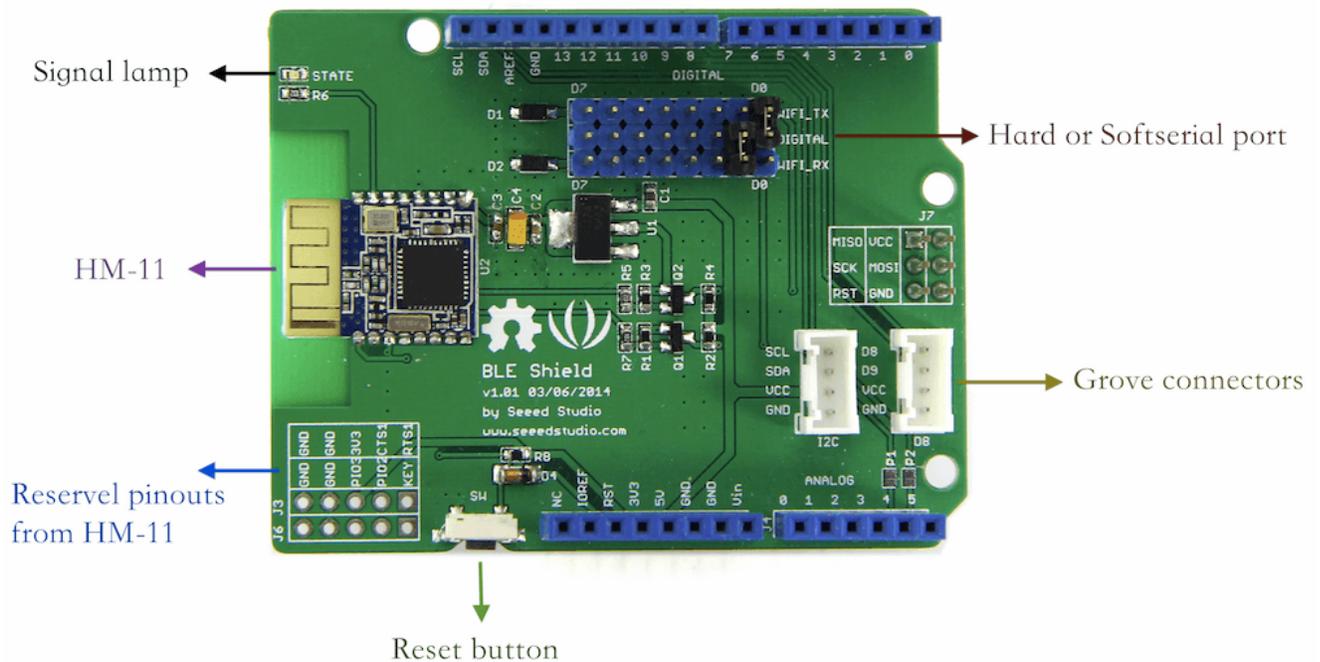
Note

Please note that "Not recommended" means that it might have chance to work with the platform board however requires extra work such as jump wires or rewriting the code. If you are interested in digging more, welcome to contact with techsupport@seeed.cc.

Click to see full

	Arduino Uno Seeeduino v4.2	Arduino Mega Seeeduino Mega	Zero(m0) LoraWan	Arduino Leonardo Seeeduino Lite	Arduino 101	Arduino Due 3.3v	Intel Edison 5v	Linkit One
2.8" TFT Touch Shield V2.0	bap nonsupport	bap nonsupport	Not recommended	bap nonsupport	Not recommended	Not recommended	Not recommended	Not recommended
Base Shield V2	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Camera Shield	Only Pin234567	Hardware Serial OK	Not recommended	Not recommended	Yes	Hardware Serial OK	No	No
EL Shield	Yes	Yes	No	Yes	No	No	No	No
Energy Shield	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
GPRS Shield	Not recommended	Not recommended	Yes	Yes	Yes	Not recommended	Yes	No need
Motor Shield V2.0	Yes	Stepper motor only	No	Yes	Stepper motor only	Stepper motor only	No	No
Music Shield V2.0	Yes	Yes	Not recommended	Yes	Yes	Yes	Yes	Yes
NFC Shield V2.0	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Protoshield Kit for Arduino	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RS232 Shield	Yes	Yes	No	Yes	No	No	No	No
Relay Shield V3.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SD Card Shield V4.0	Yes	Yes	Not recommended	Yes	Yes	Yes	No	No
Seed BLE Shield V1	Yes	Not recommended	Not recommended	Yes	No need	Not recommended	Not recommended	No need
W5500 Ethernet Shield	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wifi Shield(Fi250) V1.1	Not recommended	Not recommended	Not recommended	Yes	Yes	Not recommended	No need	No need
Wifi Shield V2	Yes	Not recommended	Not recommended	Yes	Yes	Not recommended	No need	No need
XBee Shield V2	Yes	Not recommended	Not recommended	Yes	Yes	Not recommended	Not recommended	Not recommended

Hardwarw Overview

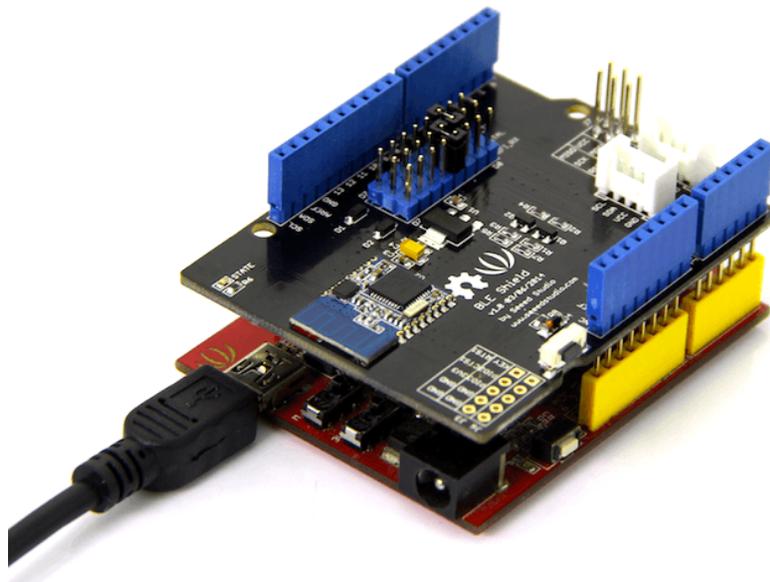


- HM-11: The basic module is HM-11, more information you can refer to this wiki of [HM-11](#).
- Signal lamp: Lamp will blink if no one connect BLE, but the lamp would keep lighting after BLE has been connected.
- Grove connectors: There are two Grove connectors onto the BLE shield, you can plug Grove products onto the board conveniently.

- Hard or Softserial port: You can choose two of seven digital pins as the communication channel. Just plug the jumpers into the headers. ****There are two mistakes on the silkscreen, please kindly regard "WIFI_TX" and "WIFI_RX" as "BLE_TX" and "BLE_RX". ****
- Reserved pinouts from HM-11: There are some reserved pinouts from HM-11 module, such as CTS1, RTS1 and PIO2, etc.
- Reset button: Press the reset button if you need to reset the BLE Shield. However, this reset button does not affect the state of the main board(such as Arduino Uno) if BLE Shield is plugged onto the main board.

Applications

Hardware Connection



Plug Seeed BLE Shield onto the Arduino/Seeeduino directly. **Please pay attention to the position of jumpers on the BLE Shield.**

SoftwareSerial Communication

Seeed BLE Shield can be acted as a master or slave, you can use the one via different demos. **If you are going to use the following SoftwareSerial program, please refer to the way of connection in the previous pic. BLE_TX-->D2, BLE_RX-->D3.**

Open Arduino IDE, copy the following program and upload it onto the Arduino/Seeeduino board. And then two BLE Shields can communicate with each other.

Demo : BLE Slave

```
1#include <SoftwareSerial.h> //Software Serial Port
2#define RxD 2
3#define TxD 3
4
5#define DEBUG_ENABLED 1
6
7SoftwareSerial BLE(RxD,TxD);
8
9void setup()
10{
11  Serial.begin(9600);
12  pinMode(RxD, INPUT);
13  pinMode(TxD, OUTPUT);
14  setupBleConnection();
15
16}
17
18void loop()
19{
20  char recvChar;
21  while(1){
22    if(BLE.available()){//check if there's any data sent from the remote BLE shield
23      recvChar = BLE.read();
24      Serial.print(recvChar);
25    }
26    if(Serial.available()){//check if there's any data sent from the local serial terminal, you can add the
27other applications here
28      recvChar = Serial.read();
29      BLE.print(recvChar);
30    }
31  }
32}
33
34void setupBleConnection()
35{
36  BLE.begin(9600); //Set BLE BaudRate to default baud rate 9600
37  BLE.print("AT+CLEAR"); //clear all previous setting
38  BLE.print("AT+ROLE0"); //set the bluetooth name as a slaver
39  BLE.print("AT+SAVE1"); //don't save the connect information
40 }
```

Demo : BLE Master

```
1#include <SoftwareSerial.h> //Software Serial Port
2#define RxD 2
3#define TxD 3
4
5#define DEBUG_ENABLED 1
6
7SoftwareSerial BLE(RxD,TxD);
8
```

```

9
10void setup()
11{
12  Serial.begin(9600);
13  pinMode(RxD, INPUT);
14  pinMode(TxD, OUTPUT);
15  setupBleConnection();
16
17}
18
19void loop()
20{
21  char recvChar;
22  while(1){
23    if(BLE.available()){//check if there's any data sent from the remote BLE shield
24      recvChar = BLE.read();
25      Serial.print(recvChar);
26    }
27    if(Serial.available()){//check if there's any data sent from the local serial terminal, you can add the
28other applications here
29      recvChar = Serial.read();
30      BLE.print(recvChar);
31    }
32  }
33}
34
35void setupBleConnection()
36{
37  BLE.begin(9600); //Set BLE BaudRate to default baud rate 9600
38  BLE.print("AT+CLEAR"); //clear all previous setting
39  BLE.print("AT+ROLE1"); //set the bluetooth name as a master
  BLE.print("AT+SAVE1"); //don't save the connect information
  }

```

HardwareSerial Communication

Besides, you can use BLE Shield via AT commands without any program, **but you need to change the positions of two jumpers. BLE_TX-->D1, BLE_RX-->D0.**

Then open a Serial Port Tool, like CoolTerm or others. The following are some settings : **Baudrate: 9600(default) , Data Bits: 8, Parity: none, Stop Bits: 1.**

First, you can send a(some) "AT" command(s) to BLE Shield to have a test. If it returns an "OK", then you can do the following steps. **If not, you can upload a blank program to Arduino/Seeeduino**, and see whether you can get response from Serial Port Tool via the previous operation.

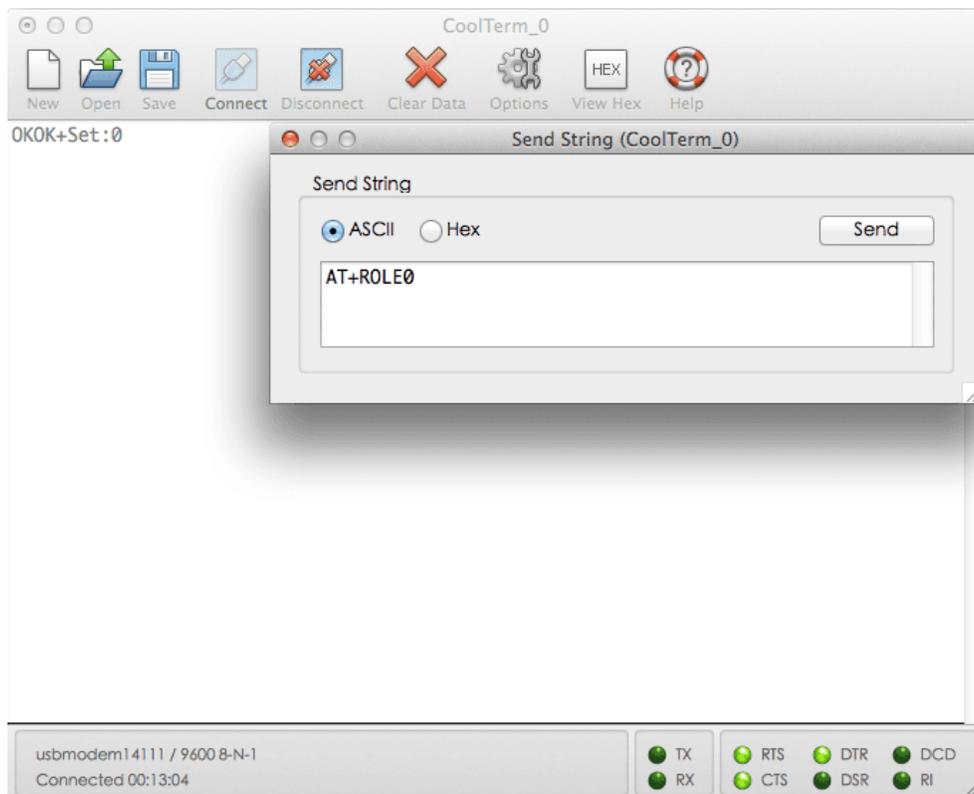
```

1void setup()
2{
3}
4

```

```
5void loop()
6{
7}
```

Then, send an "AT+ROLE0" command to BLE Shield; it will return an "OK+Set:0", which means now the BLE Shield is ready to act as a slave.



AT Commands

More information about the AT Commands please refer to the data sheet of BLE module. You can download it from the Resource space.

Related Reading

-
- [FAQ about Seeed BLE Shield](#). _Also, you can enter the FAQ page by clicking the "FAQ" button which in the right side of product's wiki page. _

Resource

[Schematic of Seeed BLE Shield](#)

[BLE_apk_for_Android](#)

[DataSheet of BLE module](#)

Support

Please submit any technical issue into our [forum](#) or drop mail to techsupport@seeed.cc