

# Grove - Infrared Receiver



The Infrared Receiver is used to receive infrared signals and also used for remote control detection. There is an IR detector on the Infrared Receiver which is used to get the infrared light emitted by the Infrared Emitter. The IR detector have a demodulator inside that looks for modulated IR at 38 KHz. The Infrared Receiver can receive signals well within 10 meters. If more than 10 meters , the receiver may not get the signals. We often use the two Groves-the Infrared Receiver and the [Grove - Infrared Emitter](#) to work together.

## Version

| Product Version                | Changes               | Released Date |
|--------------------------------|-----------------------|---------------|
| Grove - Infrared Receiver v1.0 | Initial               | Nov. 01 2015  |
| Grove - Infrared Receiver v1.1 | Change the Silkscreen | Jul. 24 2016  |






## Specifications

- Voltage: 3.3-5V
- Distance: 10m

### Tip

More details about Grove modules please refer to [Grove System](#)

## Platforms Supported

| Arduino   | Raspberry Pi  | BeagleBone  | Wio   | LinkIt ONE  |
|---|---|---|---|---|
|  |  |  |  |  |

### Caution

The platforms mentioned above as supported is/are an indication of the module's hardware or theoretical compatibility. We only provide software library or code examples for Arduino platform in most cases. It is not possible to provide software library / demo code for all possible MCU platforms. Hence, users have to write their own software library.

## Getting Started

The Grove - Infrared Emitter can send data while Grove - Infrared Receiver will receive them.





## Play With Arduino

### Note

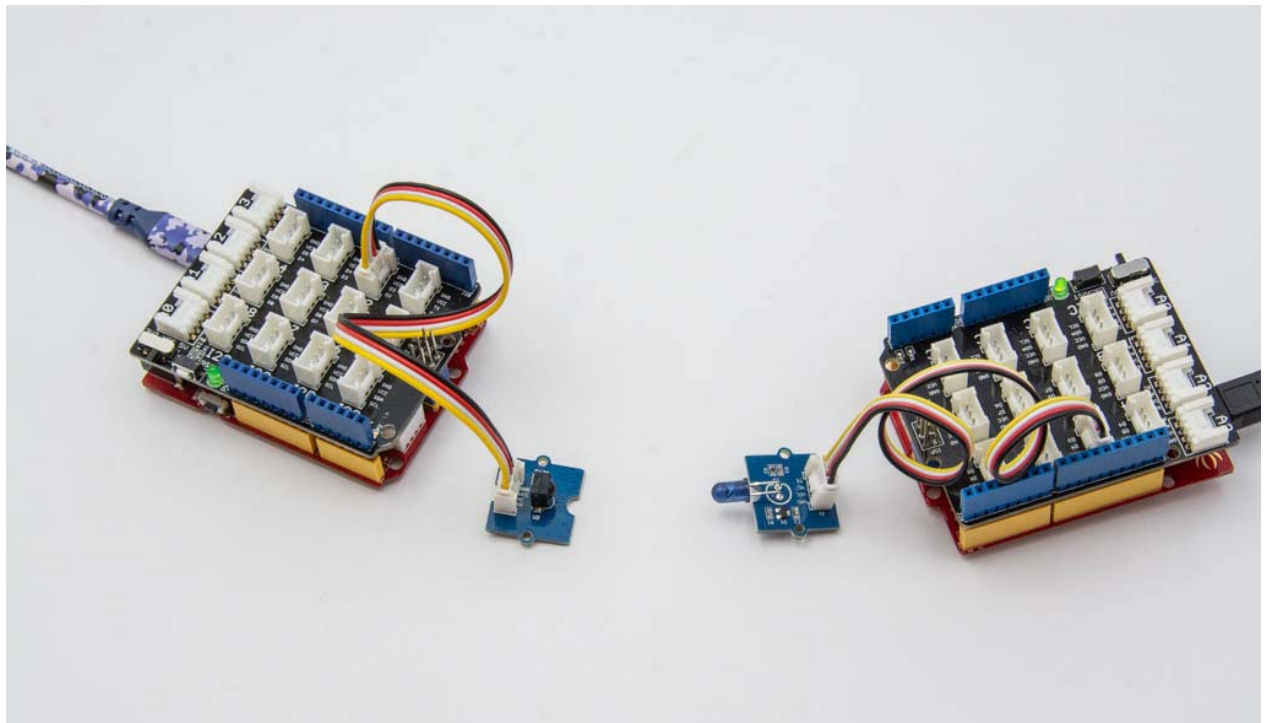
If this is the first time you work with Arduino, we firmly recommend you to see [Getting Started with Arduino](#) before the start.

## Hardware

- **Step 1.** Prepare the below stuffs:

| Seeeduino V4.2  | Base Shield   | Grove - Infrared Emitter   | Grove - Infrared Receiver   |
|---|---|--|---|
| <br>X2 | <br>X2 |  |  |

- **Step 2.** Connect Grove - Infrared Emitter to port **D3** of one Grove-Base Shield.
- **Step 3.** Connect Grove - Infrared Receiver to port **D2** of the other Grove-Base Shield.
- **Step 4.** Plug Grove - Base Shield into Seeeduino.
- **Step 5.** Connect Seeeduino to PC via a USB cable.



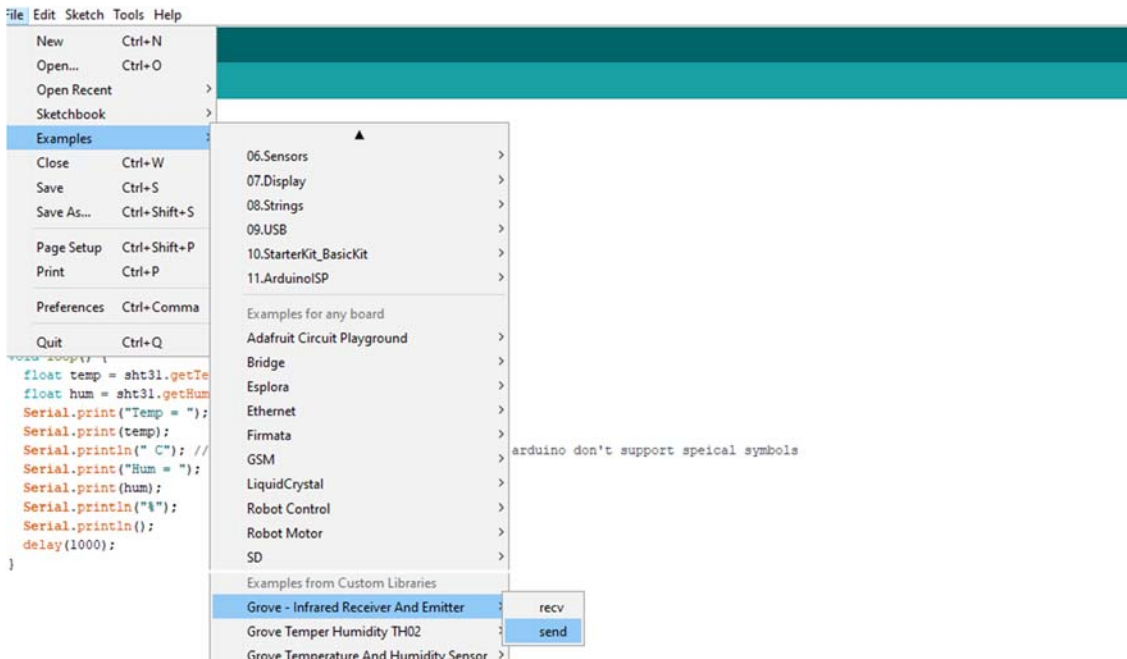
### Note

If we don't have Grove Base Shield, We also can directly connect this module to Seeeduino as below.

| Seeeduino     | Grove - Infrared Emitter |
|---------------|--------------------------|
| 5V            | Red                      |
| GND           | Black                    |
| Not Conencted | White                    |
| D3            | Yellow                   |
|               |                          |
| 5V            | Red                      |
| GND           | Black                    |
| Not Conencted | White                    |
| D2            | Yellow                   |

## Software

- **Step 1.** Download the [IRSendRev-master library](#) from Github.
- **Step 2.** Refer [How to install library](#) to install library for Arduino.
- **Step 3.** Restart the Arduino IDE. Open `recv` example via the path: **File->Examples->Grove - Infrared Receiver And Emitter->recv.**



Or you can open a new sketch and copy the belowing code into your Arduino IDE.

```
1#include <IRSendRev.h>
2
3#define BIT_LEN    0
4#define BIT_START_H  1
5#define BIT_START_L  2
6#define BIT_DATA_H   3
7#define BIT_DATA_L   4
8#define BIT_DATA_LEN 5
9#define BIT_DATA     6
10
11const int pinRecv = 2;      // ir receiver connect to D2
12
13void setup()
14{
15  Serial.begin(115200);
16  IR.Init(pinRecv);
17  Serial.println("init over");
18}
19
20unsigned char dta[20];
21
22void loop()
23{
24  if(IR.IsDta())           // get IR data
25  {
26    IR.Recv(dta);         // receive data to dta
27
28    Serial.println("+-----+");
29    Serial.print("LEN = ");
30    Serial.println(dta[BIT_LEN]);
31    Serial.print("START_H: ");
32    Serial.print(dta[BIT_START_H]);
33    Serial.print("\tSTART_L: ");
34    Serial.println(dta[BIT_START_L]);
35
36    Serial.print("DATA_H: ");
37    Serial.print(dta[BIT_DATA_H]);
38    Serial.print("\tDATA_L: ");
39    Serial.println(dta[BIT_DATA_L]);
40
41    Serial.print("\r\nDATA_LEN = ");
42    Serial.println(dta[BIT_DATA_LEN]);
43
44    Serial.print("DATA: ");
45    for(int i=0; i<dta[BIT_DATA_LEN]; i++)
46    {
47      Serial.print("0x");
48      Serial.print(dta[i+BIT_DATA], HEX);
49      Serial.print("\t");
50    }
51    Serial.println();
52
53    Serial.print("DATA: ");
54    for(int i=0; i<dta[BIT_DATA_LEN]; i++)
```

```

55 {
56   Serial.print(dta[i+BIT_DATA], DEC);
57   Serial.print("\t");
58 }
59 Serial.println();
60 Serial.println("-----+r\n\r\n");
61 }
62}

```

- **Step 4.** Upload the `recv` demo to the seeeduino with Grove - Infrared Receiver. If you do not know how to upload the code, please check [how to upload code](#).
- **Step 5.** Open `send` example via the path: **File->Examples->Grove - Infrared Receiver And Emitter->send**.

Or you can open a new sketch and copy the belowing code into your Arduino IDE.

```

1#include <IRSendRev.h>
2
3#define BIT_LEN    0
4#define BIT_START_H  1
5#define BIT_START_L  2
6#define BIT_DATA_H   3
7#define BIT_DATA_L   4
8#define BIT_DATA_LEN 5
9#define BIT_DATA     6
10
11const int ir_freq = 38;      // 38k
12
13unsigned char dtaSend[20];
14
15void dtalnit()
16{
17  dtaSend[BIT_LEN]    = 11;      // all data that needs to be sent
18  dtaSend[BIT_START_H] = 179;    // the logic high duration of "Start"
19  dtaSend[BIT_START_L] = 90;     // the logic low duration of "Start"
20  dtaSend[BIT_DATA_H]  = 11;     // the logic "long" duration in the communication
21  dtaSend[BIT_DATA_L]  = 33;     // the logic "short" duration in the communication
22
23  dtaSend[BIT_DATA_LEN] = 6;     // Number of data which will sent. If the number is other, you
24  should increase or reduce dtaSend[BIT_DATA+x].
25
26  dtaSend[BIT_DATA+0]  = 128;    // data that will sent
27  dtaSend[BIT_DATA+1]  = 127;
28  dtaSend[BIT_DATA+2]  = 192;
29  dtaSend[BIT_DATA+3]  = 63;
30  dtaSend[BIT_DATA+4]  = 192;
31  dtaSend[BIT_DATA+5]  = 63;
32}
33
34void setup()
35{
36  dtalnit();
37}
38

```

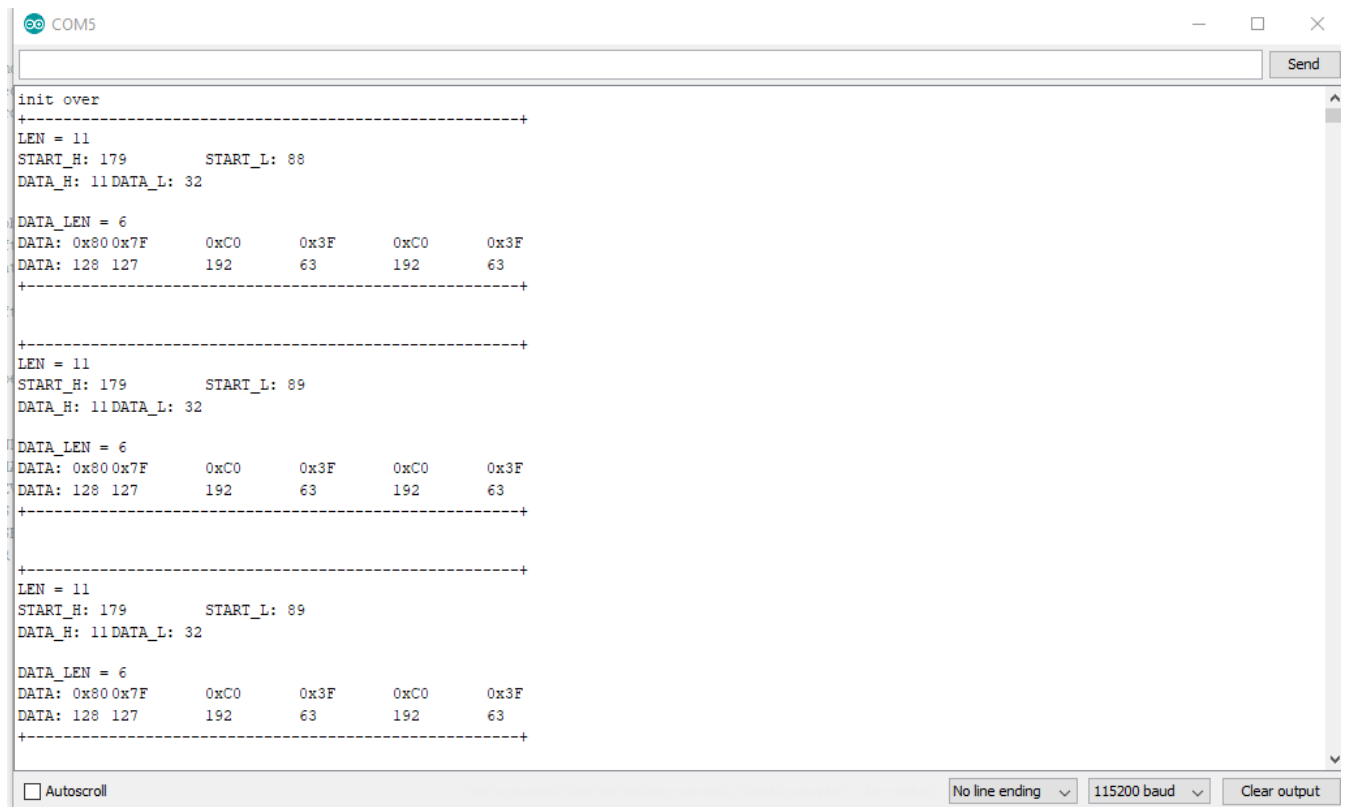
```

39void loop()
40{
41  IR.Send(dtaSend, 38);
42
43  delay(2000);
44}

```

- **Step 6.** Upload the send demo to the seeeduino with Grove - Infrared Emitter.
- **Step 7.** Open the **Serial Monitor** of Arduino IDE by click **Tool-> Serial Monitor**. Or tap the **Ctrl + Shift + M** key at the same time.

If every thing goes well, The result should be like:



```

COM5
init over
-----+
LEN = 11
START_H: 179 START_L: 88
DATA_H: 11DATA_L: 32

DATA_LEN = 6
DATA: 0x80 0x7F 0xC0 0x3F 0xC0 0x3F
DATA: 128 127 192 63 192 63
-----+

-----+
LEN = 11
START_H: 179 START_L: 89
DATA_H: 11DATA_L: 32

DATA_LEN = 6
DATA: 0x80 0x7F 0xC0 0x3F 0xC0 0x3F
DATA: 128 127 192 63 192 63
-----+

-----+
LEN = 11
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DATA_LEN = 6
DATA: 0x80 0x7F 0xC0 0x3F 0xC0 0x3F
DATA: 128 127 192 63 192 63
-----+

 Autoscroll
No line ending 115200 baud Clear output

```

## Resources

- **[Zip]** Grove - Infrared Receiver eagle files
- **[Lib]** IR Send and Receiver Library
- **[Lib]** IR Receive Library for LinkIt ONE
- **[Pdf]** TSOP282 Datasheet

## Projects

**IR LaunchPad to LaunchPad Communication:** Send text from one LaunchPad to another using the Grove IR emitter and receiver!

## Tech Support

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