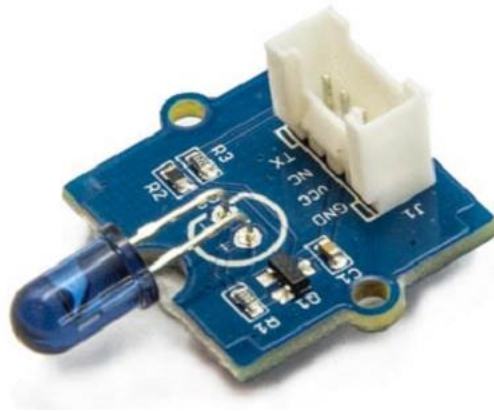


Grove - Infrared Emitter



The Infrared Emitter is used to transmit infrared signals through an infrared LED, while there is an **Infrared receiver** to get the signals on the other side. An infrared LED is like any other LED, with its color centered around 940nm. We can not only use the emitter to transmit data or commands, but also to emulate remotes to control your home appliance using an Arduino. The Infrared Emitter can transmit signals reliable up to 10 meters. Beyond 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 Emitter v1.0	Initial	Nov. 01 2015
Grove - Infrared Emitter v1.1	Change the Infrared transmitting tube location	Jul. 24 2016
Grove - Infrared Emitter v1.2	Change the valnue of C1 to make the power more stable	Dec. 14 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

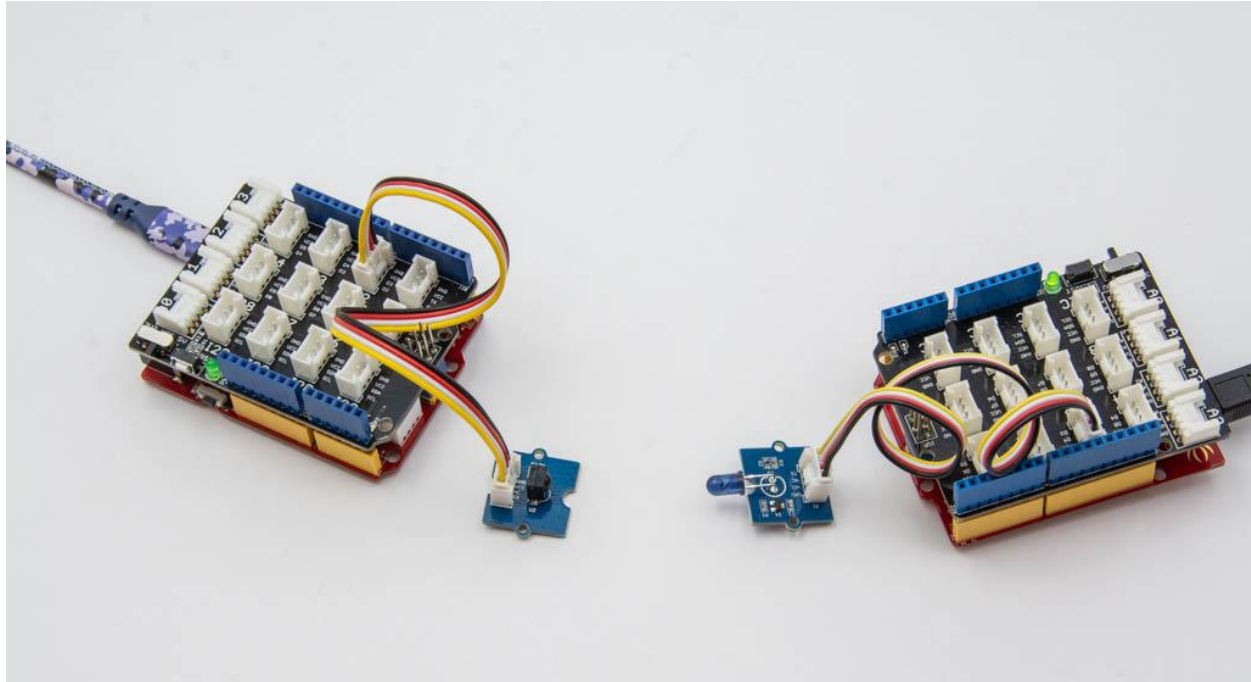
If this is the first time you work with Arduino, we firmly recommend you to see [Getting Started with Arduino](#) before the start.

Hardware

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

Seeeduino V4.2	Base Shield	Grove - Infrared Emitter	Grove - Infrared Receiver
 X2	 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

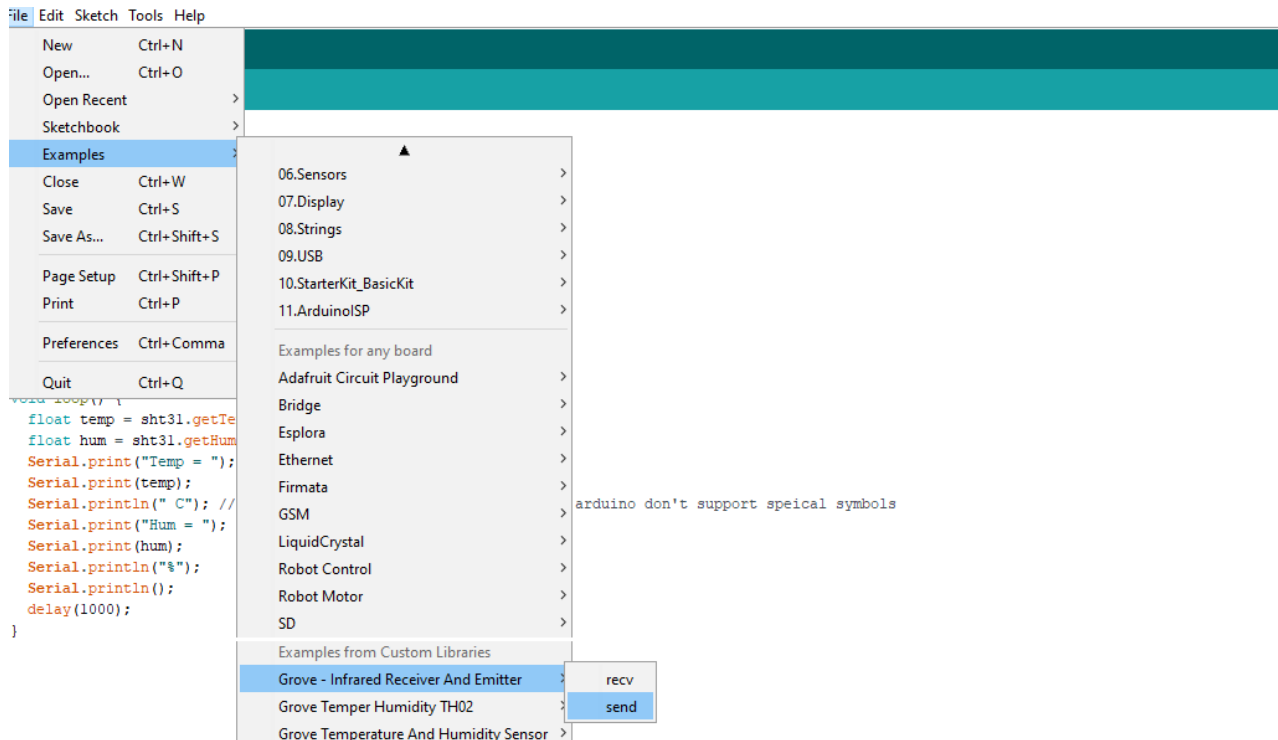
If we don't have Grove Base Shield, We also can directly connect this module to Seeeduino as below.

Seeeduino	Grove - Infrared Emitter
5V	Red
GND	Black
Not Conencted	White
D3	Yellow
Seeeduino	Grove - Infrared Receiver
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 following 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
11 const int pinRecv = 2;           // ir receiver connect to D2
12
13 void setup()
14 {
15     Serial.begin(115200);
16     IR.Init(pinRecv);
17     Serial.println("init over");
18 }
19
20 unsigned char dta[20];
21
22 void loop()
23 {
24     if (IR.IsDta())              // get IR data
25     {
26         IR.Recv(dta);           // receive data to dta

```

```

27
28     Serial.println("+-----");
29 ----+");
30     Serial.print("LEN = ");
31     Serial.println(dta[BIT_LEN]);
32     Serial.print("START_H: ");
33     Serial.print(dta[BIT_START_H]);
34     Serial.print("\tSTART_L: ");
35     Serial.println(dta[BIT_START_L]);
36
37     Serial.print("DATA_H: ");
38     Serial.print(dta[BIT_DATA_H]);
39     Serial.print("\tDATA_L: ");
40     Serial.println(dta[BIT_DATA_L]);
41
42     Serial.print("\r\nDATA_LEN = ");
43     Serial.println(dta[BIT_DATA_LEN]);
44
45     Serial.print("DATA: ");
46     for(int i=0; i<dta[BIT_DATA_LEN]; i++)
47     {
48         Serial.print("0x");
49         Serial.print(dta[i+BIT_DATA], HEX);
50         Serial.print("\t");
51     }
52     Serial.println();
53
54     Serial.print("DATA: ");
55     for(int i=0; i<dta[BIT_DATA_LEN]; i++)
56     {
57         Serial.print(dta[i+BIT_DATA], DEC);
58         Serial.print("\t");
59     }
60     Serial.println();
61     Serial.println("+-----");
62 ----+\r\n\r\n");
    }
}

```

- **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

```

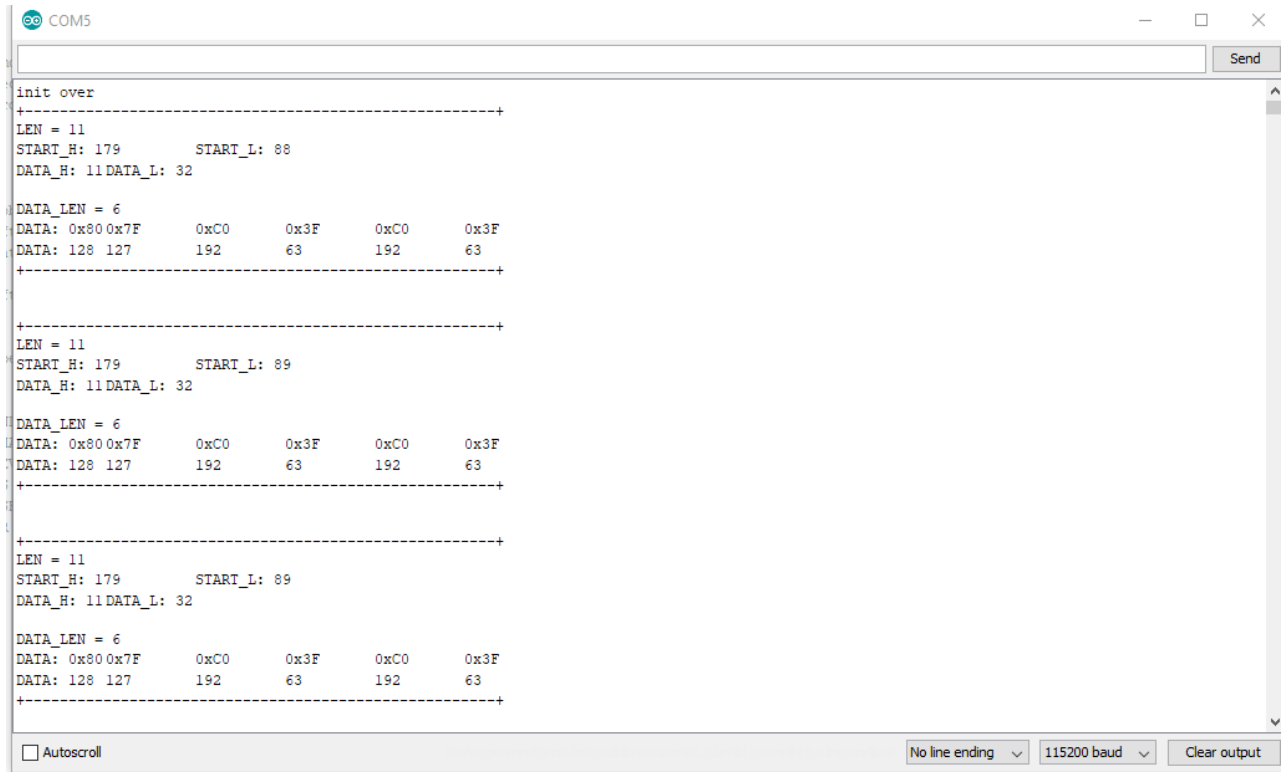
```

10
11 const int ir_freq = 38;           // 38k
12
13 unsigned char dtaSend[20];
14
15 void dtaInit()
16 {
17     dtaSend[BIT_LEN]           = 11;           // all data that needs to be
18 sent
19     dtaSend[BIT_START_H]       = 179;         // the logic high duration of
20 "Start"
21     dtaSend[BIT_START_L]       = 90;         // the logic low duration of
22 "Start"
23     dtaSend[BIT_DATA_H]        = 11;         // the logic "long" duration in
24 the communication
25     dtaSend[BIT_DATA_L]        = 33;         // the logic "short" duration
26 in the communication
27
28     dtaSend[BIT_DATA_LEN]      = 6;           // Number of data which will
29 sent. If the number is other, you should increase or reduce
30 dtaSend[BIT_DATA+x].
31
32     dtaSend[BIT_DATA+0]        = 128;         // data that will sent
33     dtaSend[BIT_DATA+1]        = 127;
34     dtaSend[BIT_DATA+2]        = 192;
35     dtaSend[BIT_DATA+3]        = 63;
36     dtaSend[BIT_DATA+4]        = 192;
37     dtaSend[BIT_DATA+5]        = 63;
38 }
39
40 void setup()
41 {
42     dtaInit();
43 }
44
45 void loop()
46 {
47     IR.Send(dtaSend, 38);
48
49     delay(2000);
50 }

```

- **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: 0x800x7F   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: 0x800x7F   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: 0x800x7F   0xC0   0x3F   0xC0   0x3F
DATA: 128 127   192    63    192    63
+-----+

 Autoscroll
No line ending  115200 baud  Clear output
```

Resources

- **[Zip]** Grove-Infrared Emitter eagle files
- **[Lib]** IR Send and Receiver Library
- **[Pdf]** TSAL6200 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.