Grove - Infrared Emitter User Manual

Release date： 2015/9/22

Version： 1.0

Wiki: http://www.seeedstudio.com/wiki/Grove_-_Infrared_Emitter

Bazaar: http://www.seeedstudio.com/depot/Grove-Infrared-Emitter-p-993.html?cPath=19_23

Document Revision History

Revision	Date	Author	Description
1.0	Sep 22, 2015	Loovee	Create file

Contents

Disclaimer

For physical injuries and possessions loss caused by those reasons which are not related to product quality, such as operating without following manual guide, natural disasters or force majeure, we take no responsibility for that.

Under the supervision of Seeed Technology Inc., this manual has been compiled and published which covered the latest product description and specification. The content of this manual is subject to change without notice.

Copyright

1. Introduction

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.

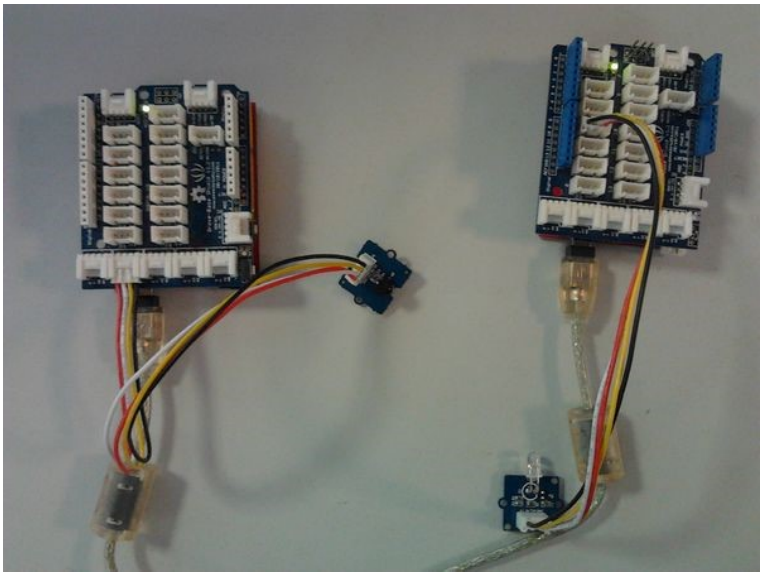
2. Specification

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

3. Demonstration

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

- Connect the Grove - Infrared Emitter to D3.
- Connect the Grove - Infrared Receiver to D2.



4. With Arduino/Seeeduino

4.1 Suggest Reading for Starter

- Download Arduino and install Arduino driver
- Getting Started with Seeeduino/Arduino

4.2 IRSendRev Library

We have created a library to help you start playing quickly with the Seeeduino/Arduino, in this section we'll show you how to set up the library.

4.2.1 Setup

1. *Download the library code as a zip file from the IRSendRev github page.*
2. Unzip the downloaded file into your …/arduino/libraries.
3. Rename the unzipped folder "IRSendRev"
4. Start the Arduino IDE (or restart if it is open).

4.3 Infrared Emitter Examples/Applications

These example are going to show you how to use features of Grove - Infrared Emitter. You can use Infrared Emitter combination with Infrared Receiver Grove. Connect the IR send pins to D3 for this demo.

4.3.1 Receiver

Notice: You need to have an Infrared Receiver Grove. And upload this demo to the board with Infrared Receiver Grove

- Open File->Examples->IRSendRev->example->recv sketch for a complete example, or copy and paste code below to a new Arduino sketch.

Description

This example connect the IR receiver pins to D2 for this demo. You can see the remote control's infrared data that received through a serial port terminal, then write the received infrared data into send.ino and upload to the board with Infrared Emitter Grove, so you can send the same data with remote control's button.

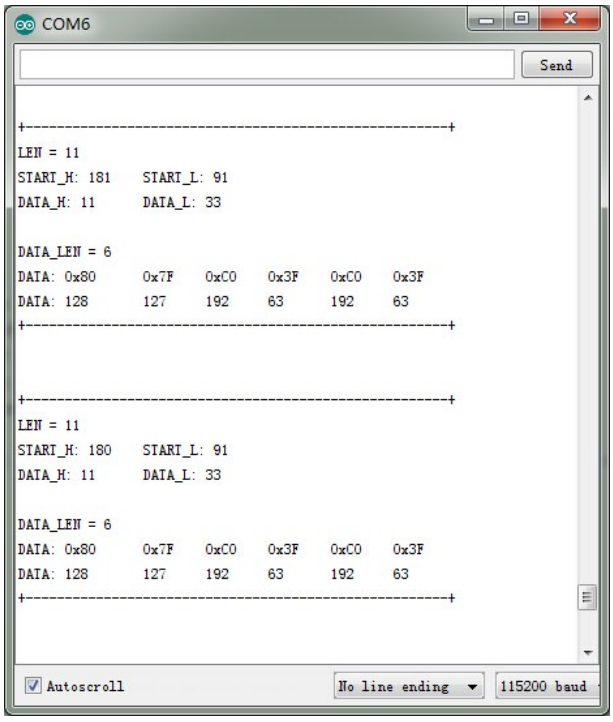
Application

You can note the remote control's infrared data down through Infrared Receiver, then send the same data through Infrared Emitter in some cases, such as open the fan switch when indoor temperature is greater than 26 degrees.

```
#include <IRSendRev.h>

#define BIT_LEN         0
#define BIT_START_H     1
#define BIT_START_L     2
#define BIT_DATA_H      3
#define BIT_DATA_L      4
#define BIT_DATA_LEN    5
#define BIT_DATA        6

const int pinRecv = 2;              // ir receiver connect to D2

void setup()
{
    Serial.begin(115200);
    IR.Init(pinRecv);
    Serial.println("init over");
}

unsigned char dta[20];

void loop()
{
    if(IR.IsDta())                  // get IR data
    {
        IR.Recv(dta);               // receive data to dta

        Serial.println("+-----------------------------------------------------+");
        Serial.print("LEN = ");
        Serial.println(dta[BIT_LEN]);
        Serial.print("START_H: ");
        Serial.print(dta[BIT_START_H]);
        Serial.print("\tSTART_L: ");
        Serial.println(dta[BIT_START_L]);

        Serial.print("DATA_H: ");
        Serial.print(dta[BIT_DATA_H]);
        Serial.print("\tDATA_L: ");
        Serial.println(dta[BIT_DATA_L]);
```

```
        Serial.print("\r\nDATA_LEN = ");
        Serial.println(dta[BIT_DATA_LEN]);

        Serial.print("DATA: ");
        for(int i=0; i<dta[BIT_DATA_LEN]; i++)
        {
            Serial.print("0x");
            Serial.print(dta[i+BIT_DATA], HEX);
            Serial.print("\t");
        }
        Serial.println();

        Serial.print("DATA: ");
        for(int i=0; i<dta[BIT_DATA_LEN]; i++)
        {
            Serial.print(dta[i+BIT_DATA], DEC);
            Serial.print("\t");
        }
        Serial.println();
        Serial.println("+-----------------------------------------------------+\r\n\r\n");
    }
}
```

- Upload the code to the development board.
- Open the serial monitor window and wait for the input.
- Using IR remote control sending data(This example use MIDEA Company's IR remote control of fans, and press the open/close key.).
- You can see the information below.



4.3.2 Emitter

- Open File->Examples->IRSendRev->example->send sketch for a complete example, or copy and paste code below to a new Arduino sketch.

Description

Connect the IR send pins to D3 for this demo. You can see the remote control's infrared data that received through Infrared Receiver, such as the example above. Then write the received infrared data into this example and upload to the board with Infrared Emitter Grove, so you can send the same data with remote control's button.

Application

You can note the remote control's infrared data down through Infrared Receiver, then send the same data through Infrared Emitter in some cases, such as open the fan switch when indoor temperature is greater than 26 degrees.

Notice: Must connect the IR send pins to D3 for this demo.

```
#include <IRSendRev.h>

#define BIT_LEN         0
#define BIT_START_H     1
#define BIT_START_L     2
```

```
#define BIT_DATA_H      3
#define BIT_DATA_L      4
#define BIT_DATA_LEN    5
#define BIT_DATA        6

const int ir_freq = 38;                 // 38k

unsigned char dtaSend[20];

void dtaInit()
{
    dtaSend[BIT_LEN]        = 11;           // all data that needs to be sent
    dtaSend[BIT_START_H]    = 180;           // the logic high duration of "Start"
    dtaSend[BIT_START_L]    = 91;           // the logic low duration of "Start"
    dtaSend[BIT_DATA_H]     = 11;           // the logic "long" duration in the communication
    dtaSend[BIT_DATA_L]     = 33;           // the logic "short" duration in the communication

    dtaSend[BIT_DATA_LEN]   = 6;           // Number of data which will sent. If the number is
other, you should increase or reduce dtaSend[BIT_DATA+x].

    dtaSend[BIT_DATA+0]     = 128;           // data that will sent
    dtaSend[BIT_DATA+1]     = 127;
    dtaSend[BIT_DATA+2]     = 192;
    dtaSend[BIT_DATA+3]     = 63;
    dtaSend[BIT_DATA+4]     = 192;
    dtaSend[BIT_DATA+5]     = 63;
}

void setup()
{
    dtaInit();
}

void loop()
{
    IR.Send(dtaSend, 38);

    delay(2000);
}
```

5. Resources

- Grove-Infrared Emitter eagle files
- IR Send and Receiver Library
- TSAL6200 Datasheet

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Optical Sensor Development Tools ***category:***

Click to view products by Seeed Studio ***manufacturer:***

Other Similar products are found below :

MT9V034C12STCH-GEVB MT9V115EBKSTCH-GEVB 416015300-3 ISL29102IROZ-EVALZ MT9M021IA3XTMH-GEVB AR1335CSSC11SMKAH3-GEVB MAXCAMOV10640# MT9M031I12STMH-GEVB TSL2581CS-DB TMD3700-DB NANOUSB2.2 ASX340AT3C00XPEDH3-GEVB AR0144ATSM20XUEAH3-GEVB AR0144CSSC00SUKAH3-GEVB AR0522SRSC09SURAH3-GEVB AR0522SRSM09SURAH3-GEVB AR0521SR2C09SURAH3-GEVB MARS1-MAX9295A-GEVK MARS1-MAX9296B-GEVB ISL29112IROZ-EVALZ AR0233AT2C17XUEAH3-GEVB AR0431CSSC14SMRAH3-GEVB MARS-DEMO3-MIPI-GEVB TCS3430-DB AR0234CSSC00SUKAH3-GEVB AR0130CSSM00SPCAH-GEVB TSL2521-DB TSL2520-DB EVALZ-ADPD2212 TMD2772EVM TMG3993EVM MIKROE-2103 TSL2672EVM 1384 MT9M114EBLSTCZDH-GEVB SEN0043 SEN0162 TMD2771EVM TMD3782EVM TSL4531EVM 1918 AS7225 DEMO KIT SEN0097 SEN0212 SEN0228 AR0134CSSC00SUEAH3-GEVB AP0100AT2L00XUGAH3-GEVB AR0144CSSM20SUKAH3-GEVB 725-28915 EVAL-ADPD1081Z-PPG