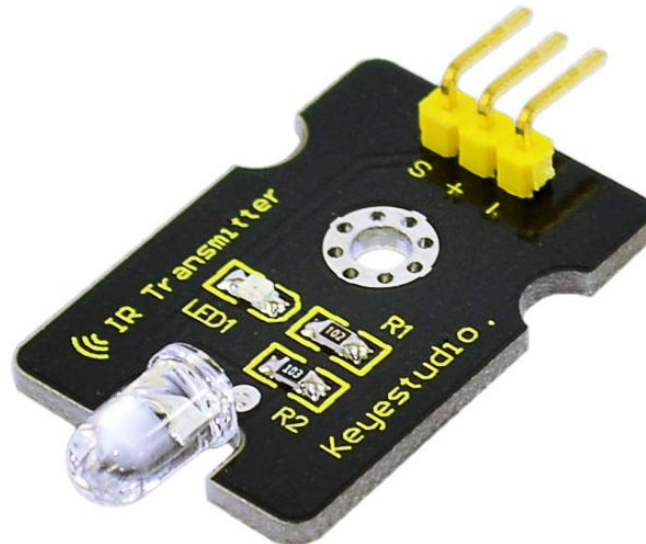# Digital IR Transmitter Module

Introduction:

IR Transmitter Module is designed for IR communication which is widely used for operating the television device from a short line-of-sight distance. The remote control is usually contracted to remote.

Since infrared (IR) remote control uses light, it requires line of sight to operate the destination device. The signal can, however, be reflected by mirrors, just like any other light sources.

If operation is required where no line of sight is possible, for instance when controlling equipment in another room or installed in a cabinet, many brands of IR extenders are available for this on the market. Most of these have an IR receiver, picking up the IR signal and relaying it via radio waves to the remote part, which has an IR transmitter mimicking the original IR control.

Infrared receivers also tend to have a more or less limited operating angle, which mainly depends on the optical characteristics of the phototransistor. However, it's easy to increase the operating angle using a matte transparent object in front of the receiver.

Specification:

Power Supply: 3-5V

Infrared center frequency: 850nm-940nm

Infrared emission angle: about 20degree

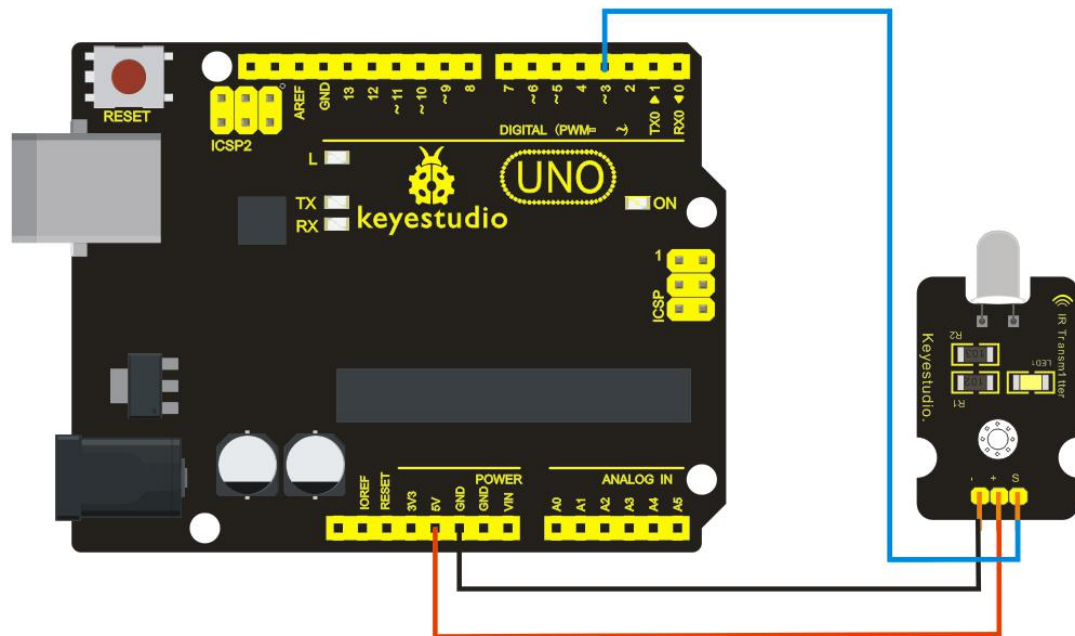Infrared emission distance: about 1.3m (5V 38Khz)

Interface socket: JST PH2.0

Mounting hole: inner diameter is 3.2mm, spacing is 15mm

Size: 35*20mm
Weight: 3g

Connection Diagram:

Sample code:

```
int led = 3;
void setup() {
    pinMode(led, OUTPUT);
}
void loop() {
  digitalWrite(led, HIGH);
  delay(1000);
  digitalWrite(led, LOW);
  delay(1000); }
```

In the darkness of the environment, you are going to see blinking blue light on phone's screen when using camera to shoot the infrared LED.

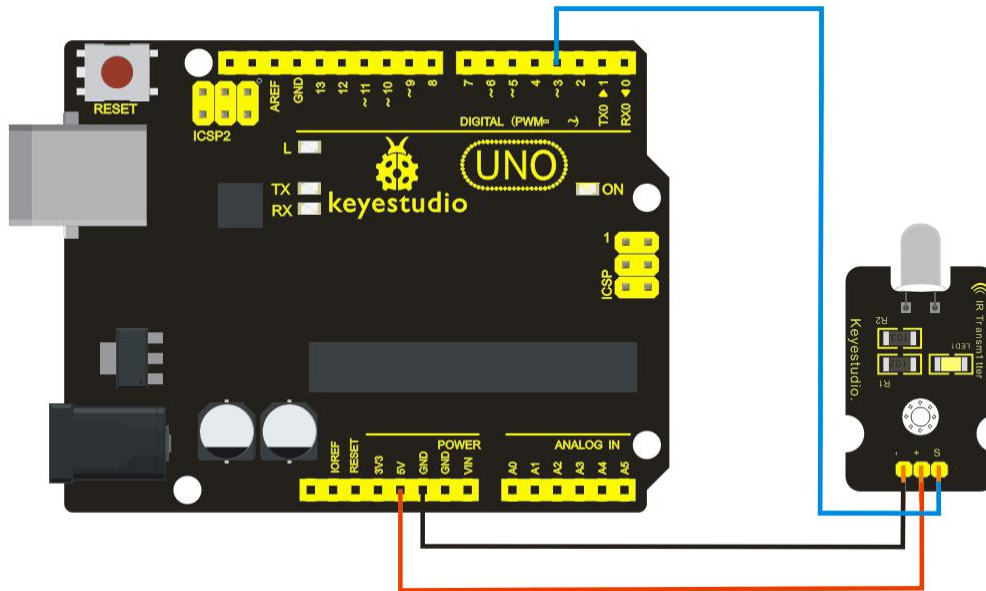Infrared remote/communication:

Hardware List

UNO R3 x2

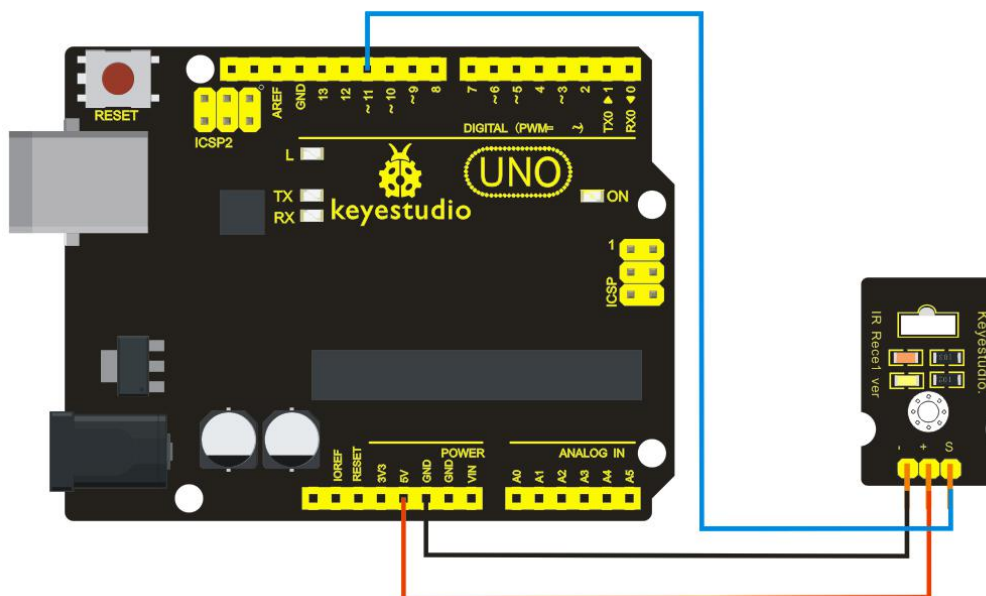Digital IR Receiver x1

IR Transmitter Module x1

Get Arduino library Arduino-IRremote and install it

Connection Diagram:

IR Transmitter: same as above, Notice: Arduino-IRremote only supports D3 as transmitter.

IR Receiver: connet it to D11 port.

Upload code to the UNO connected with IR Transmitter:

```
#include <IRremote.h>
  IRsend irsend;
void setup()
 {}
```

```
  void loop() {
   irsend.sendRC5(0x0, 8); //send 0x0 code (8 bits)
       delay(200);
   irsend.sendRC5(0x1, 8);
       delay(200); }
```

Upload code to the UNO connected with IR Receiver:
```
 #include <IRremote.h>
 const int RECV_PIN = 11;
 const int LED_PIN = 13;
 IRrecv irrecv(RECV_PIN);
 decode_results results;
 void setup()
 {Serial.begin(9600);
    irrecv.enableIRIn(); // Start the receiver
 }
  void loop()
 {if (irrecv.decode(&results))
    { if ( results.bits > 0 )
      {
         int state;
         if ( 0x1 == results.value )
         {
           state = HIGH;
         }
         else
         {
          state = LOW;
         }
          digitalWrite( LED_PIN, state );
      }
   irrecv.resume();            // prepare to receive the next value
    }}f)
```

Result
The "L" LED of the shield connected with IR Receiver will blink when IR Receiver faces to IR
Transmitter.