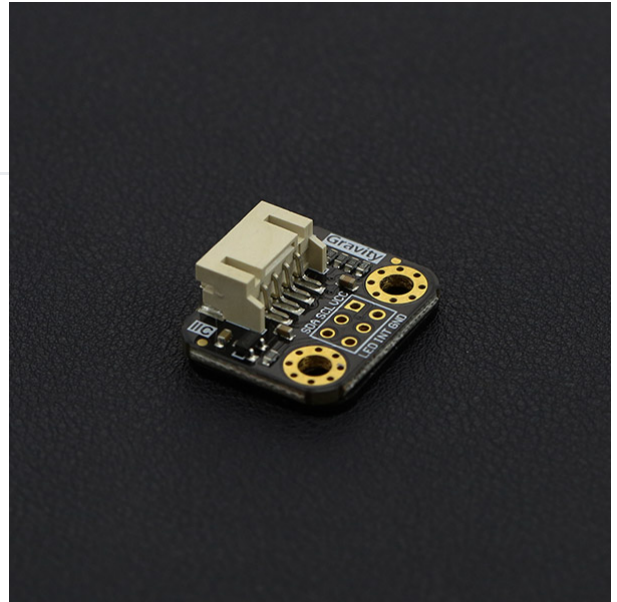


(<https://www.dfrobot.com/product-1546.html>)

## Introduction

---

The **TCS34725 I2C arduino color sensor** (<https://www.dfrobot.com/product-1546.html>) has a high sensitivity, wide dynamic range, and includes an IR blocking filter making it an ideal color sensing solution for use under varied lighting conditions. The TCS34725 color sensor also includes four ultra-bright LEDs to allow the sensor to work without external light resources. The module works via your Arduino's I2C bus and includes PH2.0-4P and



XH2.54 (breadboard) interfaces to meet a range of user scenarios.

## Specification

---

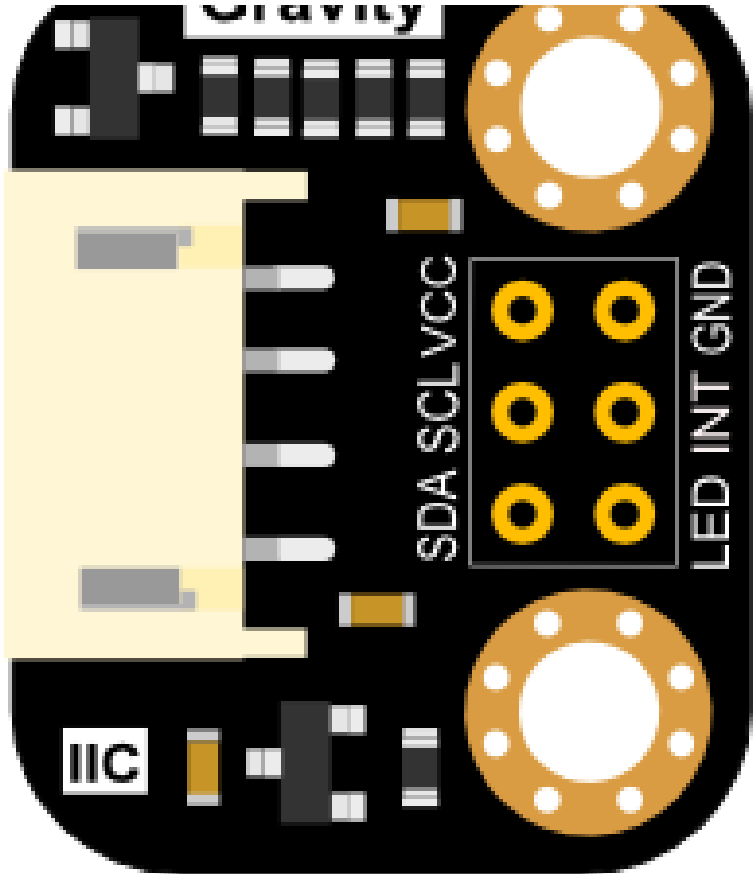
- Operating Voltage: 3.3~5V
- Operating Current: 65 uA
- Detection Range: 3-10 mm
- The Clock Frequency: 0-400 KHZ
- Interface: IIC interface
- IIC Address: 0x29
- Temperature Range: - 30 °C ~ + 70 °C
- Feet inches: 18.5 \* 23 mm/ 0.73 \* 0.9 inches
- Weight: 12 g

## Board Overview

---



SDA  
SCL  
GND  
VCC



Num	Label	Description
-----	-------	-------------

Num	SDA Label	DC-SDA Description
2	SCL	I2C-SCL

3	VCC	3.3~5V
4	GND	GND
5	LED	Active-High/Vacant On
6	INT	Active Low

Note:

1. I2C address: 0x29
2. XH2.54 interface (BreadBoard Compatible) need soldering.
3. The paper of the blocking filter could be teared out.

## Tutorial

---

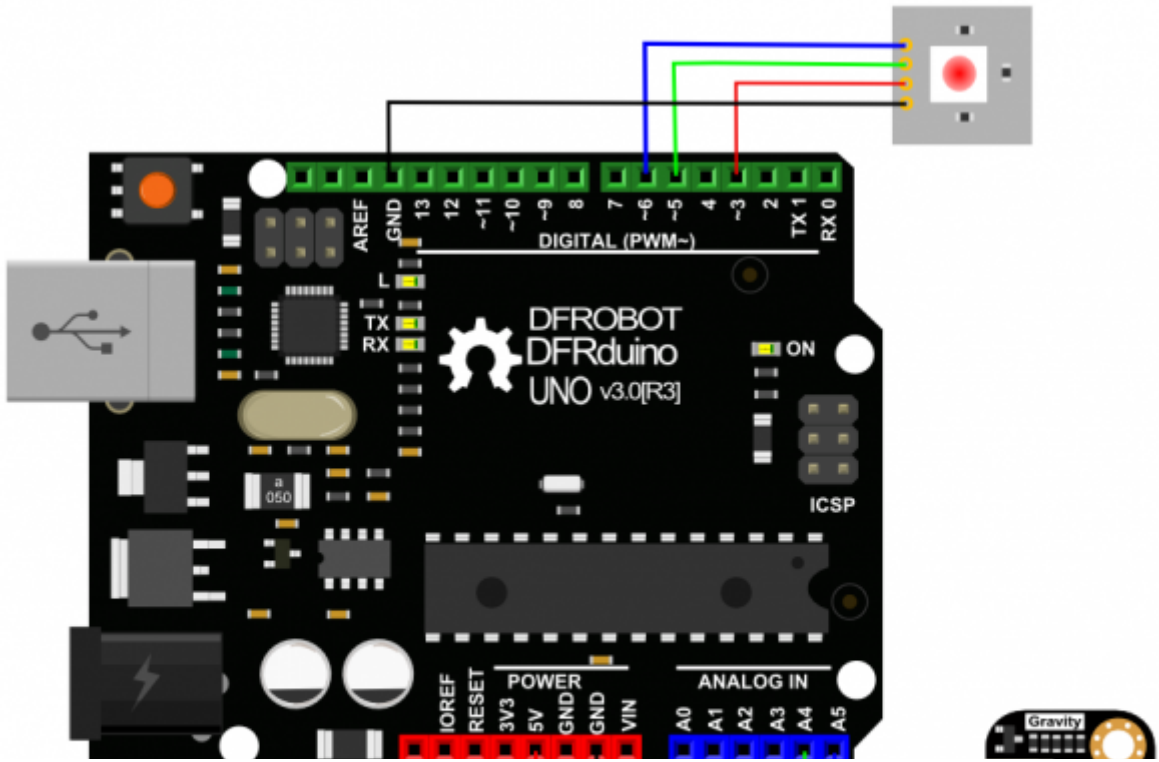
In this tutorial, we'll detect the specimen RGB value, and simulate it with RGB LEDs

## Requirements

- **Hardware**
  - DFRduino UNO (or similar) x 1
  - RGB LED Module (<https://www.dfrobot.com/product-350.html>)
  - M-M/F-M/F-F Jumper wires
- **Software**
  - Arduino IDE (Version requirements: V1.6.x), [<https://www.arduino.cc/en/Main/Software>] (<https://www.arduino.cc/en/Main/Software>)| Click to Download Arduino IDE from Arduino®]

**Note:** The sensor should be placed above the specimen, 3 ~ 10 mm

## Connection Diagram





## Sample Code

Install the Arduino Library Download here.

([https://github.com/DFRobot/DFRobot\\_TCS34725/raw/master/DFRobot\\_TCS34725.rar](https://github.com/DFRobot/DFRobot_TCS34725/raw/master/DFRobot_TCS34725.rar)) How to install Libraries in Arduino IDE (<https://www.arduino.cc/en/Guide/Libraries#.UxU8mdzF9H0>)

```

/*!
 * @file colorview.ino
 * @brief DFRobot's Color Sensor
 * @n [Get the module here]
 * @n This example read current R,G,B,C value by the IIC bus
 * @n [Connection and Diagram](http://wiki.dfrobot.com.cn/index.php?title=(SKU:SEN0212)Color_Sensor)
 *
 * @copyright [DFRobot](https://www.dfrobot.com), 2016
 * @copyright GNU Lesser General Public License
 *
 * @author [carl](carl.xu@dfrobot.com)
 * @version V1.0
 * @date 2016-07-12
 */
#include <Wire.h>
#include "DFRobot_TCS34725.h"

// Pick analog outputs, for the UNO these three work well
// use 560 ohm resistor between Red & Blue, 1K for green (its brighter)

```



```

// use ~500 Ohm resistor between red & blue, ~1k for green (its brighter)
#define redpin 3
#define greenpin 5
#define bluepin 6
// for a common anode LED, connect the common pin to +5V

// for common cathode, connect the common to ground

// set to false if using a common cathode LED
#define commonAnode true

// our RGB -> eye-recognized gamma color
byte gammatable[256];

DFRobot_TCS34725 tcs = DFRobot_TCS34725(TCS34725_INTEGRATIONTIME_50MS, TCS34725_GAIN_4X);
void setup() {
  Serial.begin(115200);
  Serial.println("Color View Test!");

  if (tcs.begin()) {
    Serial.println("Found sensor");
  } else {
    Serial.println("No TCS34725 found ... check your connections");
    while (1); // halt!
  }
}

```

```

// use these three pins to drive an LED
pinMode(redpin, OUTPUT);
pinMode(greenpin, OUTPUT);
pinMode(bluepin, OUTPUT);

// thanks PhilB for this gamma table!
// it helps convert RGB colors to what humans see
for (int i=0; i<256; i++) {
  float x = i;
  x /= 255;
  x = pow(x, 2.5);
  x *= 255;

  if (commonAnode) {
    gammatable[i] = 255 - x;
  } else {
    gammatable[i] = x;
  }
  //Serial.println(gammatable[i]);
}
}

void loop() {
  uint16_t clear, red, green, blue;
  //Serial.println("clear: " + String(clear) + ", red: " + String(red) + ", green: " + String(green) + ", blue: " + String(blue));
  digitalWrite(redpin, red);
  digitalWrite(greenpin, green);
  digitalWrite(bluepin, blue);
  delay(1000);
}

```

```
tcs.getRGB(&red, &green, &blue, &clear);
tcs.lock(); // turn off LED
Serial.print("C:\t"); Serial.print(clear);
Serial.print("\tR:\t"); Serial.print(red);
Serial.print("\tG:\t"); Serial.print(green);

Serial.print("\tB:\t"); Serial.print(blue);
Serial.println("\t");

// Figure out some basic hex code for visualization
uint32_t sum = clear;
float r, g, b;
r = red; r /= sum;
g = green; g /= sum;
b = blue; b /= sum;
r *= 256; g *= 256; b *= 256;
Serial.print("\t");
Serial.print((int)r, HEX); Serial.print((int)g, HEX); Serial.print((int)b, HEX);
Serial.println();

//Serial.print((int)r ); Serial.print(" "); Serial.print((int)g);Serial.print(" "); Ser
//Set the color lamp
analogWrite(redpin, gammatable[(int)r]);
analogWrite(greenpin, gammatable[(int)g]);
analogWrite(bluepin, gammatable[(int)b]);
```



## Expected Results

C:	1960	R:	1238	G:	358	B:	451
C:	1961	R:	1238	G:	358	B:	452
C:	1961	R:	1238	G:	358	B:	451
C:	1963	R:	1239	G:	358	B:	452
C:	1961	R:	1239	G:	357	B:	451
C:	1961	R:	1239	G:	357	B:	450
C:	1961	R:	1239	G:	357	B:	451
C:	1963	R:	1241	G:	357	B:	452
C:	1963	R:	1241	G:	358	B:	453
C:	1963	R:	1241	G:	358	B:	453
C:	1962	R:	1241	G:	358	B:	453
C:	1962	R:	1240	G:	355	B:	446
C:	1963	R:	1241	G:	355	B:	445
C:	1969	R:	1241	G:	355	B:	446

```
C:      1969      R:      1241      G:      355      B:      444
C:      1966      R:      1242      G:      355      B:      444
C:      1967      R:      1242      G:      355      B:      444
C:      1968      R:      1242      G:      355      B:      443
C:      1968      R:      1242      G:      354      B:      443
C:      1968      R:      1242      G:      355      B:      443
C:      1968      R:      1243      G:      355      B:      444
C:      1968      R:      1242      G:      355      B:      443
C:      1969      R:      1242      G:      356      B:      447
C:      1970      R:      1242      G:      355      B:      446
C:      1970      R:      1242      G:      356      B:      447
C:      1970      R:      1243      G:      355      B:      446
C:      1971      R:      1243      G:      355      B:      445
```

自动滚屏      没有结束符 ▼      115200 波特率 ▼

## FAQ


Q&A	Some general Arduino Problems/FAQ/Tips
	For any questions, advice or cool ideas to share, please visit the <a href="#">DFRobot Forum</a>

Q&A

For any questions, advice or cool ideas to share, please visit the **DFROBOT FORUM**  
**Some general Arduino Problems/FAQ/Tips**  
(<https://www.dfrobot.com/forum/>).

## More Documents

- DFRobot\_TCS34725 Arduino Library  
([https://github.com/DFRobot/DFRobot\\_TCS34725/raw/master/DFRobot\\_TCS34725.rar](https://github.com/DFRobot/DFRobot_TCS34725/raw/master/DFRobot_TCS34725.rar))
- Schematic  
(<https://dfimg.dfrobot.com/nobody/wiki/85f2b7bc879d979738992bc087326645.pdf>)
- Layout (<https://dfimg.dfrobot.com/nobody/wiki/2408828dff04ca31558c4a43443f7349.pdf>)
- TCS34725 Datasheet  
(<https://dfimg.dfrobot.com/nobody/wiki/c3f4ace6e119c05216e7f1fdefa650d4.pdf>)
- TCS35725 Arduino Library (Github) ([https://github.com/DFRobot/DFRobot\\_TCS34725/](https://github.com/DFRobot/DFRobot_TCS34725/))

 DFshopping\_car1.png Shopping from [TCS34725 RGB Color Sensor For Arduino](https://www.dfrobot.com/product-1546.html)

(<https://www.dfrobot.com/product-1546.html>) or **DFRobot Distributor**.

(<https://www.dfrobot.com/index.php?route=information/distributorslogo>)

Category: DFRobot (<https://www.dfrobot.com/>) > Sensors & Modules

(<https://www.dfrobot.com/category-156.html>) > Sensors (<https://www.dfrobot.com/category->

36.html) > Light & Imaging Sensors (<https://www.dfrobot.com/category-58.html>)