

COLOR SKU:U009



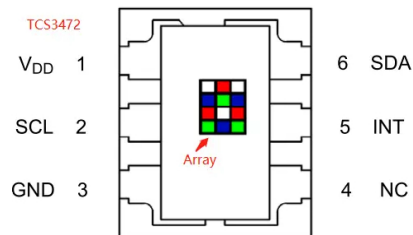
MSSTACK

Color Sensor TCS3472
GROVE/I2C

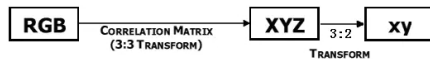
Description

COLOR is color recognition unit integrated TCS3472. Like its namesake, COLOR is able to detect color value and return RGB data to the host.

Identify color principle: In the TCS3472, a 3*4 array of filtered photodiodes and a 16 bit analog-to-digital converters are embedded. Of the 12 photodiodes, 3 have red filters, 3 have green filters, 3 have blue filters and 3 have no filter (clear).



When detecting the color of an object, TCS3472 returns data from four channels: red(R), green(G), blue(B) and clear(C)(non-filtered). The response from the red, green and blue channels (RGB) can be used to determine a particular source's chromaticity coordinates (x, y).



Chromaticity Calculation Process Overview:

$$X = (-0.14282)(R) + (1.54924)(G) + (-0.95641)(B)$$

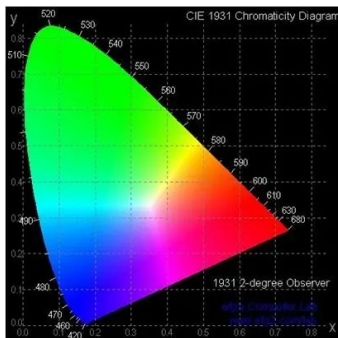
$$Y = (-0.32466)(R) + (1.57837)(G) + (-0.73191)(B)$$

$$Z = (-0.68202)(R) + (0.77073)(G) + (0.56332)(B)$$

$$x = X/(X+Y+Z)$$

$$y = Y/(X+Y+Z)$$

When we get coordinates (x, y), please reference the below figure so as to get the recommended color.



This Unit communicates with the M5Core via the GROVE A interface(I2C). Address is 0x29.

Product Features

Detection range: -40°C~85°C

GROVEinterface, support [UIFlow](#) and [Arduino](#)

Two Lego-compatible holes

Product Size: 32.2mm x 24.2mm x 8.2mm

Product weight: 3.9g

Include

1x COLORUnit

1x Grove Cable

Applications

Product Color Verification

Color tracking robot

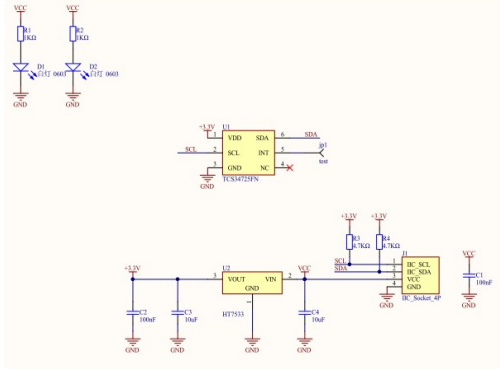
Related Link

Datasheet - [TCS3472](#)

EasyLoader

EasyLoader is a concise and fast program writer, which has a built-in case program related to the product. It can be burned to the main control by simple steps to perform a series of function verification. Please install the corresponding driver according to the device type. M5Core host [Please click here to view the CP210X driver installation tutorial](#), M5StickC/V/T/ATOM series can be used without driver)

Schematic



PinMap

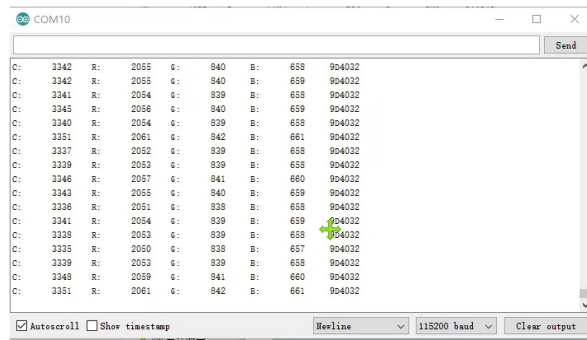
M5Core(GROVE A)	GPIO22	GPIO21	5V	GND
COLOR Unit	SCL	SDA	5V	GND

Example

1. Arduino IDE

The code below is incomplete. To get the complete code, please click [here](#)

After burnt this example, PC serial terminal will print original value RGBC(red, green, blue, clear).



2. UIFlow

If you want the complete code, please click [here](#)

