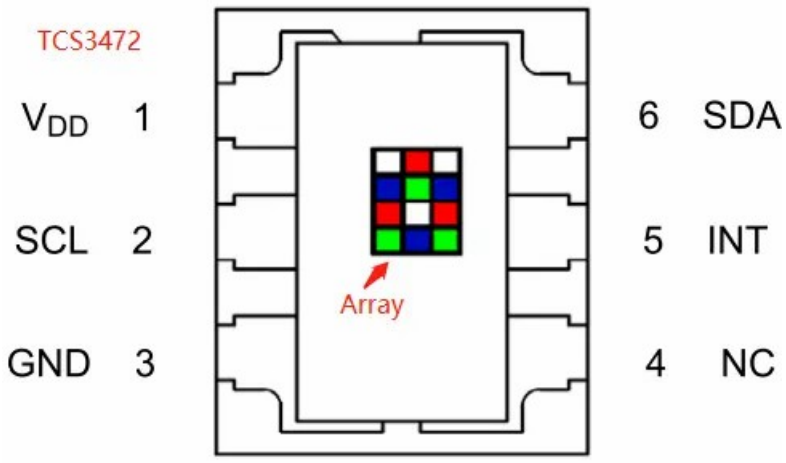
COLOR

SKU:U009

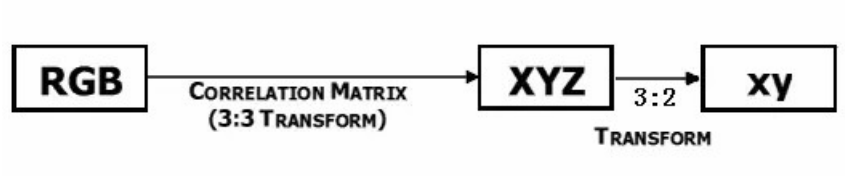
Description

COLOR is color recognition unit integrated with **TCS3472** chipset. As the name says, **COLOR** is able to detect color value and return RGB data as response.

Identify color principle: The TCS3472 chipset integrated with 3*4 array of filtered photodiodes and a 16 bit analog-to-digital embedded converters. Out of the 12 photodiodes, 3 have red filters, 3 have green filters, 3 have blue filters and 3 have no filter (clear), which gives a total range of RGBA (RGB + Transparency)



When detecting the color of an object the 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:

$$X = (2.7688)(R)+(1.7517)(G)+(1.1301)(B)$$

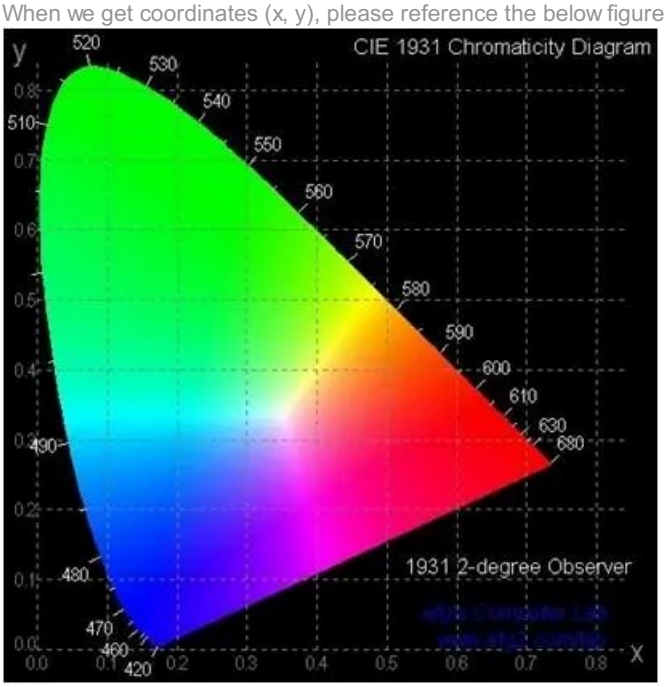
$$Y = (1.0000)(R)+(4.5906)(G)+(0.0601)(B)$$

$$Z = (0.0000)(R)+(0.0565)(G)+(5.5942)(B)$$

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

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

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℃~85℃
- GROVE interface, support UIFlow and Arduino
- Two Lego-compatible holes

Includes

- 1x COLOR Unit
- 1x Grove Cable

Applications

- Product Color Verification
- Color tracking robot

Specification

Resources	Parameter
IC	TCS3472
Workingtemperaturerange	-40°C~85°C
Communication protocol	I2C：0x29
Net weight	4g
Gross weight	17g
Product Size	32.2*24.2*8.2mm

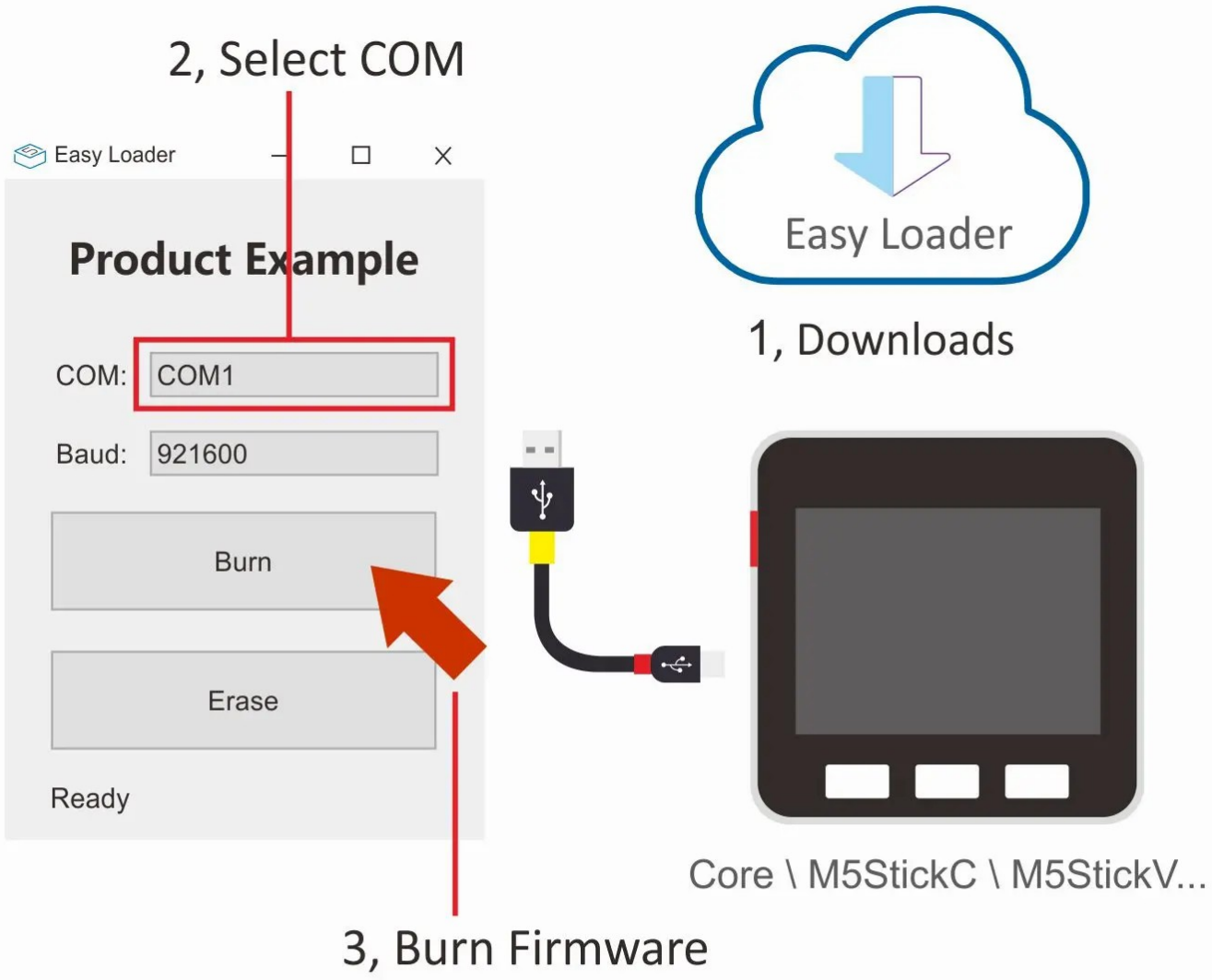
Resources	Parameter
Package Size	67*53*12mm

Related Links

- **Datasheet** - TCS3472

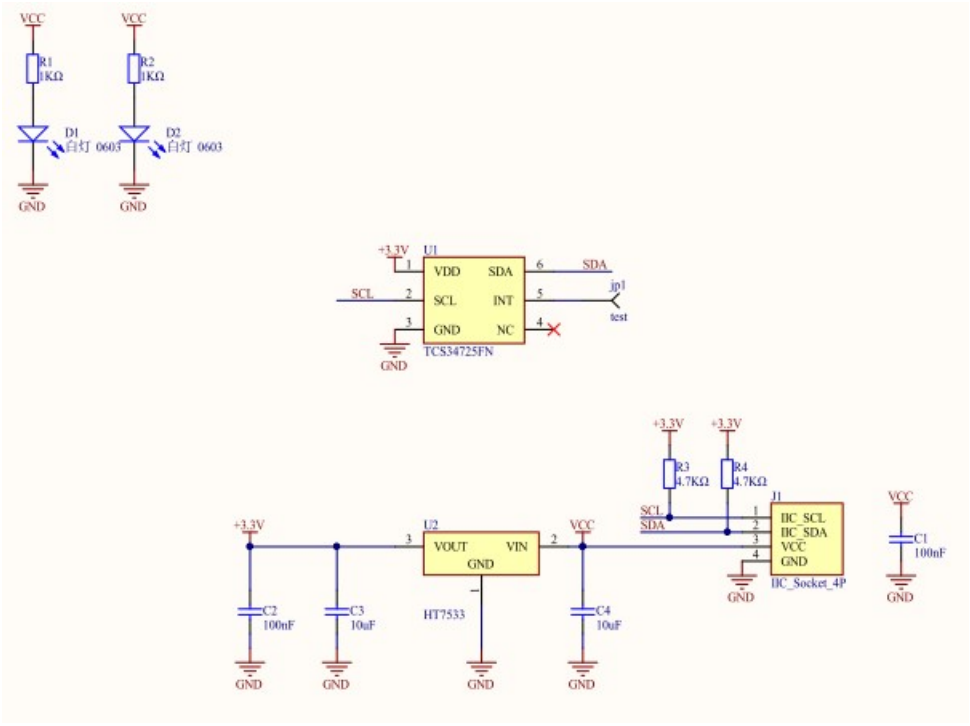
EasyLoader

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)



Windows MacOS

Schematic



PinMap

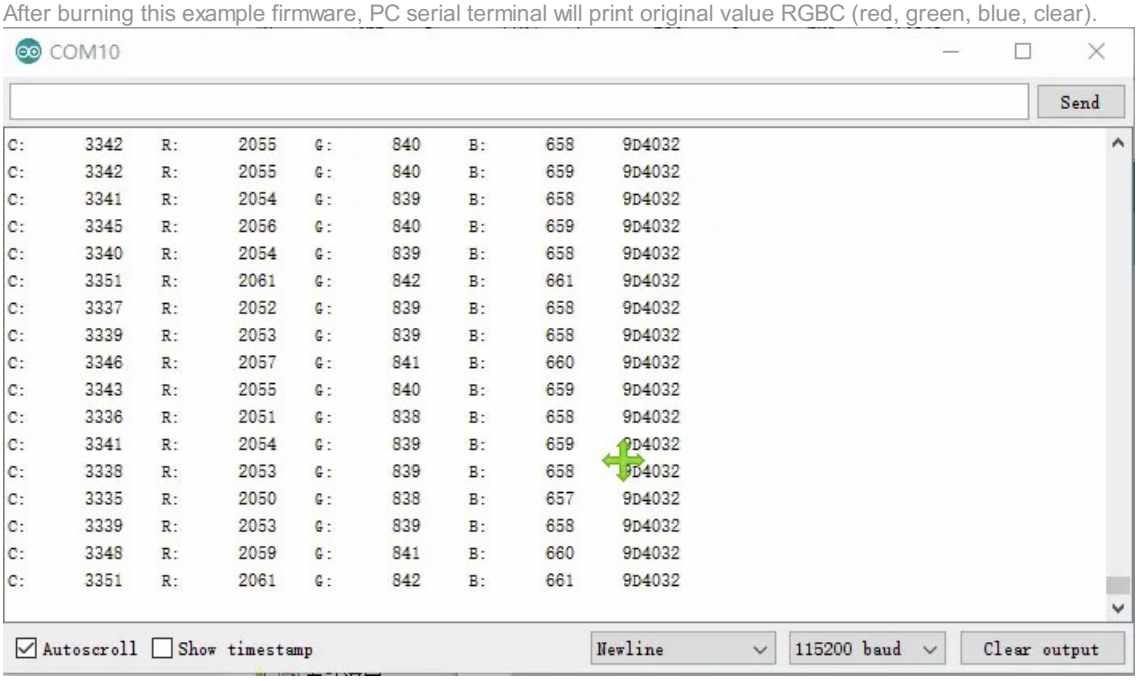
M5Core(GROVE A)	GPIO22	GPIO21	5V	GND
COLOR Unit	SCL	SDA	5V	GND

Example

1. Arduino

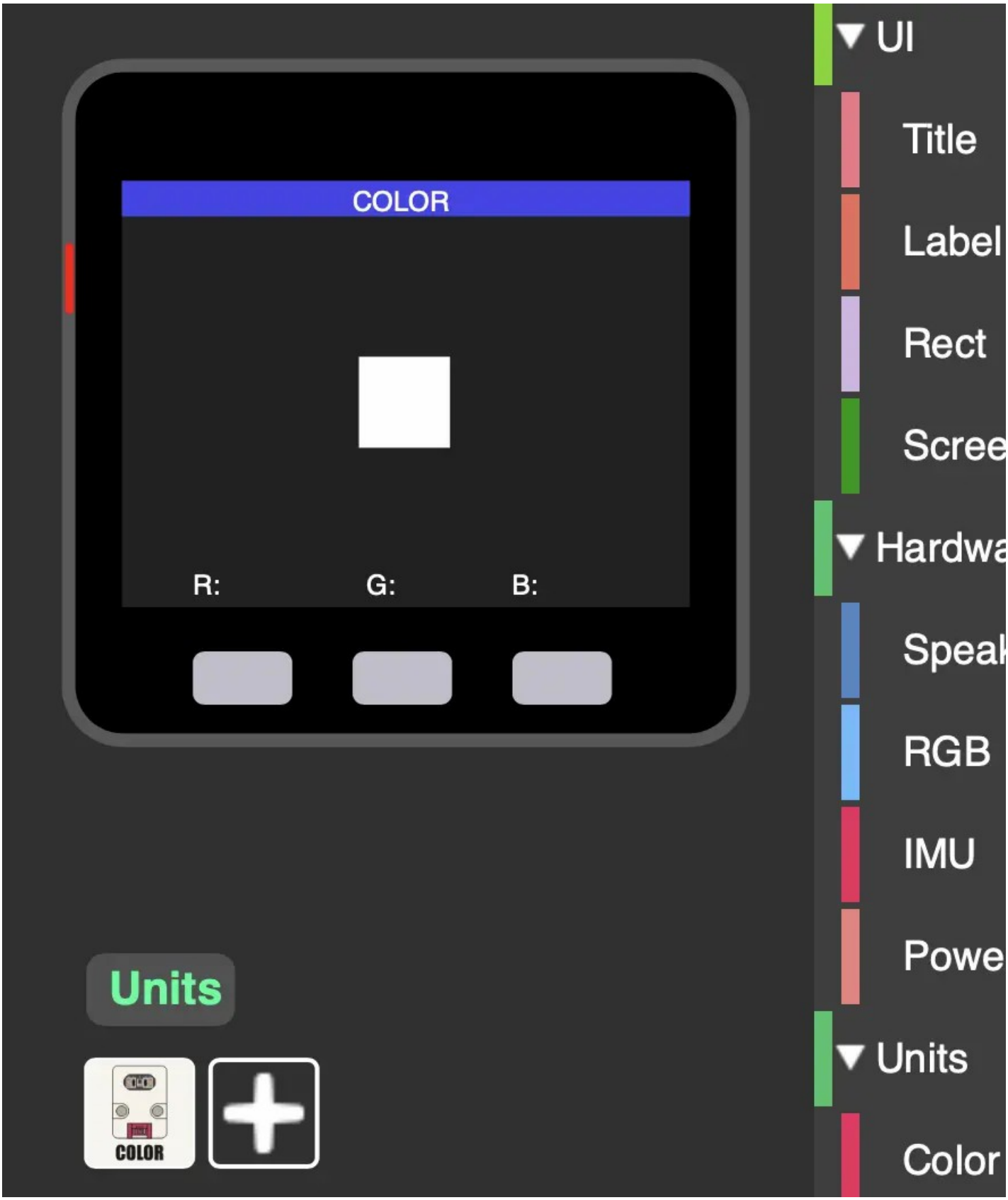
The code below is incomplete. To get the complete code, please click here

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



2. UIFlow

- Click here to download the UIFlow example



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