

3 Colour 5mm SMD LED Module

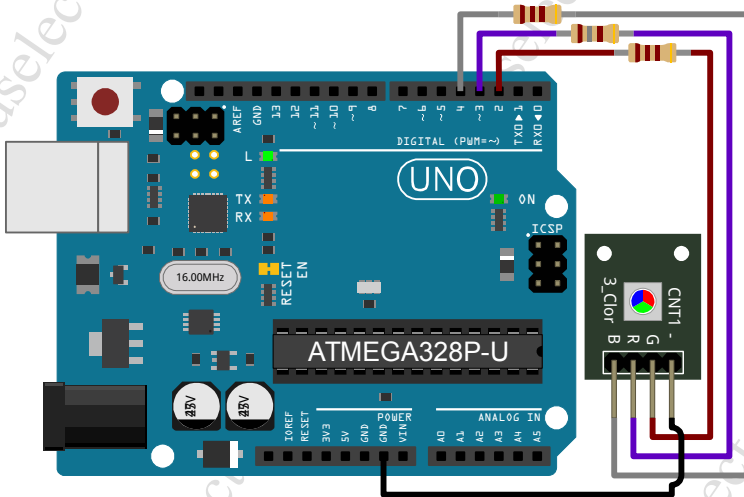
This module contains a 5 millimetre [mm] square Surface Mount Device Light Emitting Diode with 3 individually controllable red, green, and blue colour components. The individual LED components can be connected to Arduino pins which support Pulse Width Modulation and combined at various levels to reproduce almost any colour. This type of module can be used to provide a visual indication of the state of a process, e.g. red = fault, green = OK, blue = undetermined.

Important! This module requires a "dropper" resistor of at least 110 ohm [Ω] for green and blue components, and 180 Ω for the red component), otherwise they will be permanently damaged.

Table 1: 3 Colour 5mm SMD LED Module

Device	Arduino	Wire	Description
B	D4	■	Positive 5 Volts Direct Current power via 110 Ω for blue LED component.
R	D3	■	Positive 5 VDC power via 180 Ω for red segment of LED.
G	D2	■	Positive 5 VDC power via 110 Ω for green segment of LED.
-	GND	■	Common ground for all segments of the LED.

D2, D3, D4 : can be any digital or analogue pin.



The sketch below can be used to control the RGB 5mm SMD LED Module via the Arduino Serial Monitor:

```
int pBlue = 4;
int pRed = 3;
int pGreen = 2;
void setup() {
  pinMode( pBlue, OUTPUT );
  pinMode( pRed, OUTPUT );
  pinMode( pGreen, OUTPUT );
  digitalWrite ( pBlue, LOW );
  digitalWrite ( pRed, LOW );
  digitalWrite ( pGreen, LOW );
  Serial.begin( 9600 );
  while ( !Serial ) {
  }
  Serial.println( "R, G, B = turn colour on, r, g, b = turn colour off." );
}
void loop() {
  if ( Serial.available() > 0 ) {
```

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```
int cInput = Serial.read();
if ( cInput == 'B' ) {
  Serial.println( "Blue On" );
  digitalWrite ( pBlue, HIGH );
}
if ( cInput == 'b' ) {
  Serial.println( "Blue off" );
  digitalWrite ( pBlue, LOW );
}
if ( cInput == 'R' ) {
  Serial.println( "Red On" );
  digitalWrite ( pRed, HIGH );
}
if ( cInput == 'r' ) {
  Serial.println( "Red off" );
  digitalWrite ( pRed, LOW );
}
if ( cInput == 'G' ) {
  Serial.println( "Green On" );
  digitalWrite ( pGreen, HIGH );
}
if ( cInput == 'g' ) {
  Serial.println( "Green off" );
  digitalWrite ( pGreen, LOW );
}
}
}
```

Module Specifications

PCB Dimensions (H × W × D) : 19.3 × 15.4 × 1.6 mm
Enclosing Dimensions (H × W × D) : 24.5 × 15.4 × 7.3 mm
Weight: 1.25 grams [g]
Input Voltage: 5 VDC

Module Performance

Current Draw (Blue component): 12.5 milliamps [mA] @ 5.06 VDC (via 110 Ω Resistor)
Current Draw (Red component): 15.7 mA @ 5.05 VDC (via 180 Ω Resistor)
Current Draw (Green component): 15.6 mA @ 5.05 VDC (via 110 Ω Resistor)

Module Mounting

The module has 2 × 2 mm diameter mounting holes at the end opposite the pin connections. As the bare component leads protrude through the bottom of the Printed Circuit Board, suitable spacers and insulation must be used.

LED Manufacturers Specifications

Manufacturer / Model: Way Jun Technology / LED-0805RGBC
Red component wavelength: 620 - 635 nanometres [nm]
Green component wavelength: 500 - 530 nm
Blue component wavelength: 460 - 475 nm
Red component forward voltage (V_F): 1.8 volts [V] nominal, 2.4 V maximum
Green component forward current (V_F): 3.0 V nominal, 3.6 V maximum
Blue component forward current (V_F): 3.0 V nominal, 3.6 V maximum

Projects

Folder: \Modules\Optical\3_Colour_SMD_LED\

- 3_Colour_SMD_LED_SM: Controls the module via the Arduino Serial Monitor.
- 3_Colour_SMD_LED_PWM_SM: Control the module using Pulse Width Modulation via the Arduino Serial Monitor.

3 Colour 5mm SMD LED Module - Dimensions

