# OMRON

**Built-in Color Sensor** 

# **B5WC**

# **Sample Code Operation Manual**



**Built-in Color Sensor** 

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#### ■Revision History

Revision	Year/Month	Contents
А	2022/11	First Release

#### **Additional Notes**

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## Introduction

This document is the manual for the OMRON built-in Color Sensor Module B5WC Sample Code (hereafter referred to as the "Sample Code").

# 1 Outline

The Sample Code is used to evaluate the main functions of the OMRON built-in Color Sensor Module B5WC(hereafter referred to as the "Device") on an Arduino in combination with your PC.

# 2 Caution

Make sure to read the Device's data sheet before using it. Make sure to read the Device's data sheet when verifying its proper operation. Make sure to follow the instructions in the Device's data sheet when using it.

# **3** Operating Environment

Arduino board	Arduino Mega 2560 R3 Arduino Uno R3
Arduino IDE	1.8.7
OS	Windows 10 Professional 64-bit

The Sample Code was tested in the environment described below.

# 4 How to use the Application

### 4.1 Connection

Connect the Device to Arduino and Arduino to PC.

Connect the Arduino to the PC after connecting the Device to the Arduino.



Example of connection between the Device and Arduino UNO





## 4.2 Download the Arduino IDE

Download the Arduino IDE from the following URL. https://www.arduino.cc/en/Main/Software

### 4.3 Open Sample Code

Start the Arduino IDE and open the Sample Code.

[File]-[Open]-[B5WC\_SampleProject.ino]

File	Edit Sketch	Fools Help	
	New	Ctrl+N	
	Open	Ctrl+O	
	Open Recent		>
	Sketchbook		>
	Examples		>
	Close	Ctrl+W	
	Save	Ctrl+S	
	Save As	Ctrl+Shift+S	
	Page Setup	Ctrl+Shift+P	
	Print	Ctrl+P	
		Curri	
	Preferences	Ctrl+Comma	
	Quit	Ctrl+Q	
	-		

85WC_SampleProject   Arduino 1.8.7		×
File Edit Sketch Tools Help		
		ø
B5WC_SampleProject		
<pre>7 #include <vire-h> 8 8 9 /# defines #/ 10 #define B5WC_ADDR 0x40 // B5WC I2C client address at 7bit expression 11 #define AVERAGE_NUW 20 // Average number of times set value, range 1~50[times] 12 #define READ_CYCLE 200 // Data readout cycle[ms], Recommended 1 ms or more 13 14 /#* &lt;( setup [{{1 -&gt;} 15 * 1. initialize an I2C peripheral. 16 * 2. initialize an I2C peripheral. 17 e 2. defines readout there.</vire-h></pre>		^
<pre>// * 3. setup sensor settings. */ yvoid setup() {     byte send_data[2];     /* 1. initialize a Serial port for output. */     Serial.peint(115200);     Serial.println("ENGW O Sample project Start]");     Serial.println("R.G.B Voitae[V], R.G.B Ratio[K]");     Serial.println("</pre>		
23 Vire.begin(); // 12c master 30		~

### 4.4 Upload to Arudino

Configure connection settings.

[Tools]-[Board]-[Select the Arduino board you are using]



#### [Tools]-[Port]-[Select the USB port to which the Arduino is connected]

B5WC\_SampleProject | Arduino 1.8.7

File	Edit Sketch	Tools	s Help		
			Auto Format	Ctrl+T	
V			Archive Sketch		
В	5WC_Sampl		Fix Encoding & Reload		
7	#include < <b>∛i</b>		Manage Libraries	Ctrl+Shift+I	
8			Serial Monitor	Ctrl+Shift+M	
9	/* defines ≭		Serial Plotter	Ctrl+Shift+L	
10	#define B5W0				xpression
11	#define AVER		WiFi101 Firmware Updater		, range l~bU[times]
13	HUELINE KEAL		Board: "Arduino/Genuino Uno"	>	
14	/** set</td <td></td> <td>Port</td> <td></td> <td>Sorial ports</td>		Port		Sorial ports
15	∦ 1. initia		POIL	· · · · · · · · · · · · · · · · · · ·	Serial Dorts
16	∗ 2. initia		Get Board Info		COM10 (Arduino/Genuino Uno)
17	≭ 3. setup				
18	*/		Programmer: "Arduino as ISP"	>	>
19	void setup()		Burn Bootloader		
20	byte ser	u_uuu			
91					

Click on "Verify" to make sure there are no errors.



Click "Upload" and confirm that the message "Done uploading" is displayed on the screen.



## 4.5 Data acquisition

Open the Serial Monitor window.

[Tools]-[Serial Monitor]

B5WC\_SampleProject | Arduino 1.8.7

File	Edit Sketch To	ols Help		
		Auto Format	Ctrl+T	
		Archive Sketch		
В	5WC_Sampl	Fix Encoding & Reload		
7	#include <	Manage Libraries	Ctrl+Shift+I	
8		Serial Monitor	Ctrl+Shift+M	
9	/* defines	Serial Plotter	Ctrl+Shift+L	1
10	#define B5WU #define AVEF #define READ	WiFi101 Firmware Updater		on 1∼50[times] or more
13		Board: "Arduino/Genuino Ur	יסי" >	
14	/** set<br * 1. initia	Port: "COM10 (Arduino/Gen	uino Uno)" >	
16	* 2. initia	Get Board Info		
17	* 3. setup			-
18	*/	Programmer: "Arduino as IS	p	
20	hyte cer	Burn Bootloader		
21	b) to bond_d			
22	/* 1. initi	alize a Serial port for outp	ut. */	
23	Serial beg	in( 115200 );		
24	Serial pri	ntin( "[B5WC Sample project 3	Start]");	
25	Serial pri	ntin( "R,G,B Voltage[V], R,G	,B Ratio[%]″);	
26	Serial pri	ntln( "	·····");	
27				

Data is displayed in the Serial Monitor window.

The communication speed of the Serial Monitor should be 115200 baud.

The data display shows R(voltage), G(voltage), B(voltage), R(ratio), G(ratio), and B(ratio) in order from left to right. R(ratio), G(ratio), and B(ratio) show the ratio of each RGB output voltage when the highest value among the RGB output voltage values is 100%.

💿 COM10 (Arduino/Genuino Uno)		_		$\times$
				Send
[B5Wc Sample project Start]				^
0.686,0.670,0.664,100.0,97.7,96.7				
U.68U,U.661,U.654,IUU.U,87.2,86.2				
0.683.0.667.0.661.100.0.97.6.96.7				
0.683,0.667,0.661,100.0,97.6,96.7				
0.677,0.661,0.654,100.0,97.6,96.7				
0.677,0.664,0.654,100.0,98.1,96.7				
0.677,0.657,0.648,100.0,97.1,95.7				
0.680,0.661,0.648,100.0,97.2,95.3				
0.674,0.657,0.645,100.0,97.6,95.7				
0.674,0.657,0.645,100.0,97.6,95.7				
0.670,0.654,0.641,100.0,97.6,95.7				
0.667,0.651,0.638,100.0,97.6,95.7				
0.667,0.651,0.638,100.0,97.6,95.7				
				Ý
Autoscroll Show timestamp	Newline $\sim$	115200 baud $\sim$	Clear (	output

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