

# ColorMax White Balance Software

By: EMX Industries Inc.

## Installation

The ColorMax White Balance Software is a LabView 2012 VI executable. The setup installs the installer needed to run the EXE.

1. Open and run the setup file.
2. Copy and paste the EXE in your desired location on your PC.

## Operation

The “ColorMax White Balance Software” takes the “Actual Readings” and the set “Desired Values” and develops a Correction Factor. The Correction Factor then is sent to the sensor and stored in memory. It now will adjust its readings to read what was sent to it when looking at the color it was “White Balanced” to. The range of the correction factors is 0.5 to 2. For example, a reading of 40 can be adjusted to read any value between 20 (x 0.5 correction factor) to 80 (x 2.0 correction factor).

## How to “White Balance” a ColorMax™ Sensor

The ColorMax White Balance Software is intended to simplify the process of creating correction factors and sending these factors to the ColorMax. This software does not have the capabilities of setting all the functions and features on the ColorMax™. The ColorMax™ sensor must be setup with the ColorMax Application software that that is provided with the sensor.

Although the readings may be adjusted using any color sample, white is recommended because it will produce a nearly balanced RGB reflection allowing the desired values for the RGB to be equal.

Before beginning the adjustment procedure, determine the optimal sensor-to-target distance and angle. This should be done in the actual measurement configuration.

Initial set-up of the ColorMax is accomplished by using the ColorMax Application program and adjusting the Illumination (%) to obtain RGB measurements that are near midscale, allowing the White Balance correction factors to remain on scale. For example, if the initial reading for the red channel is 90%, and the desired value of 50% is entering using the White Balance Adjustment, then the red channel will reach saturation at a reading of approximately 55%. This is due to the initial reading of 90% leaves only a 10% increase to reach full scale.

## White Balance Adjustment Procedure using white target

SET ILLUMINATION (%) using ColorMax Application program

**STEP 1:** Connect the ColorMax and launch the ColorMax Application program. Set the Display Mode to Color & Luminosity. Set the Averaging to 64. Observe the readings on the RGB levels and adjust the slider to obtain a maximum reading between 70% and 90% for the highest of the RGB readings. Select Send ColorMax Readings to for each adjustment.

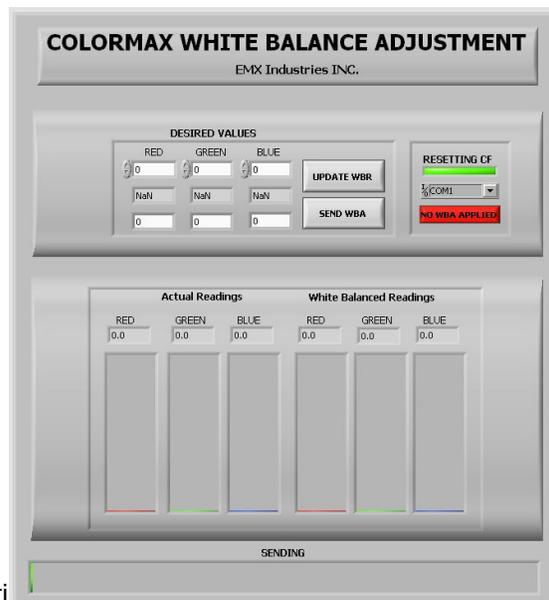


Close the ColorMax Application program upon completion.

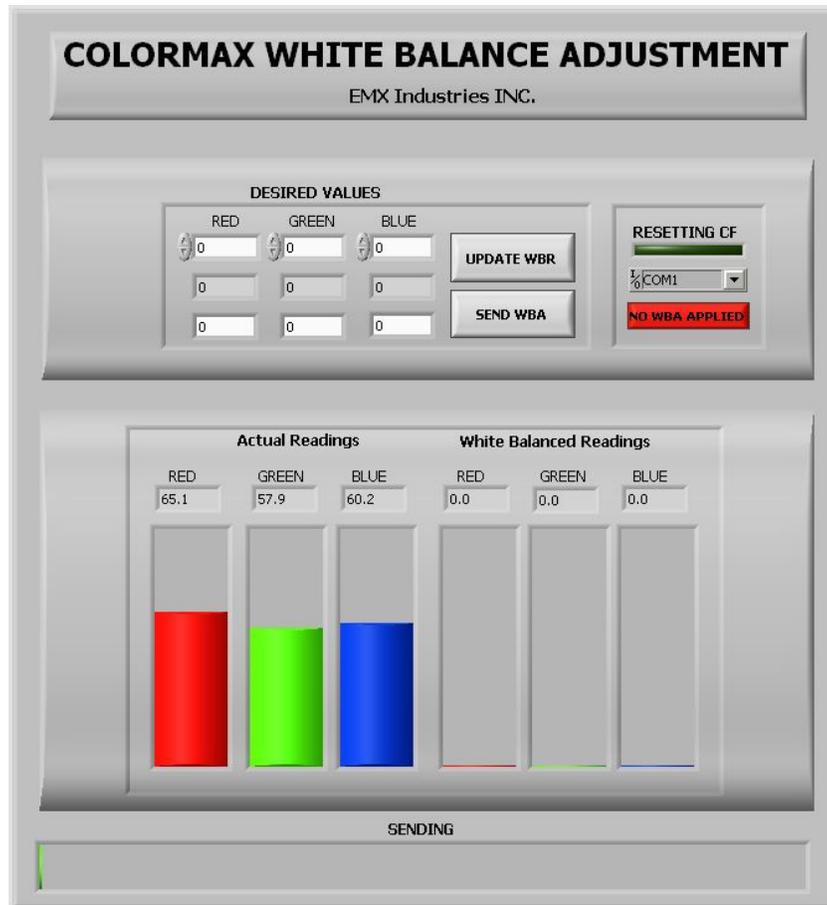
**STEP 2:** Open the ColorMax White Balance Adjustment (WBA) software and select the appropriate COM port. Select the RUN button.



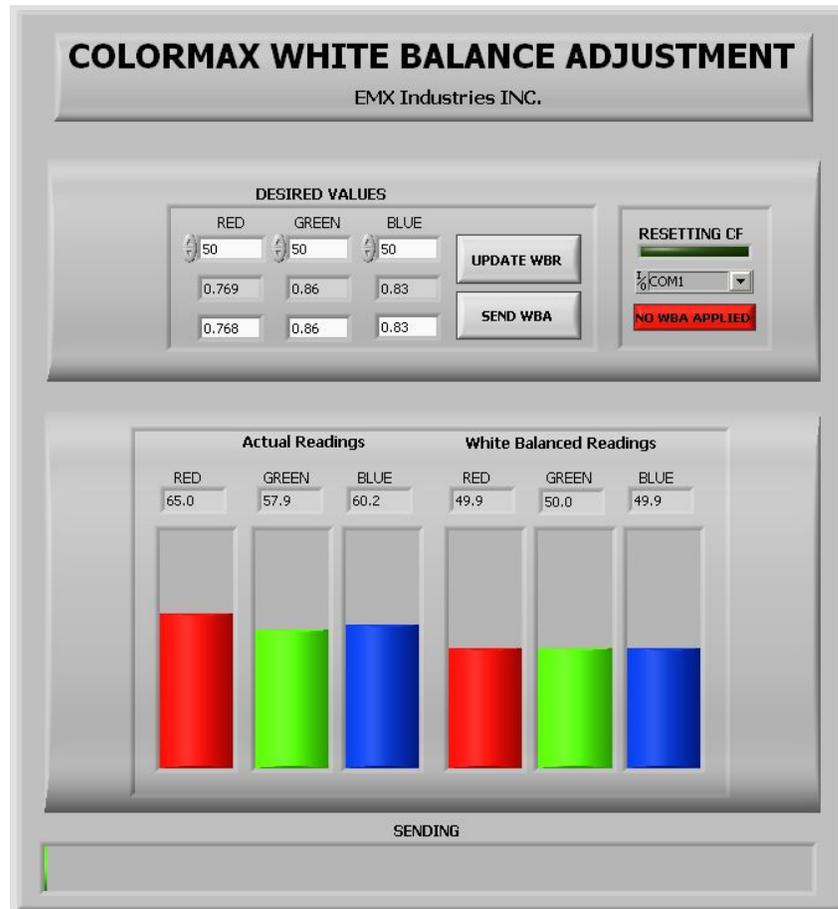
When the program is started, the first step is that the ColorMax calibration factor is set to 1.000. This is indicated by the RESETTING CF green bar.



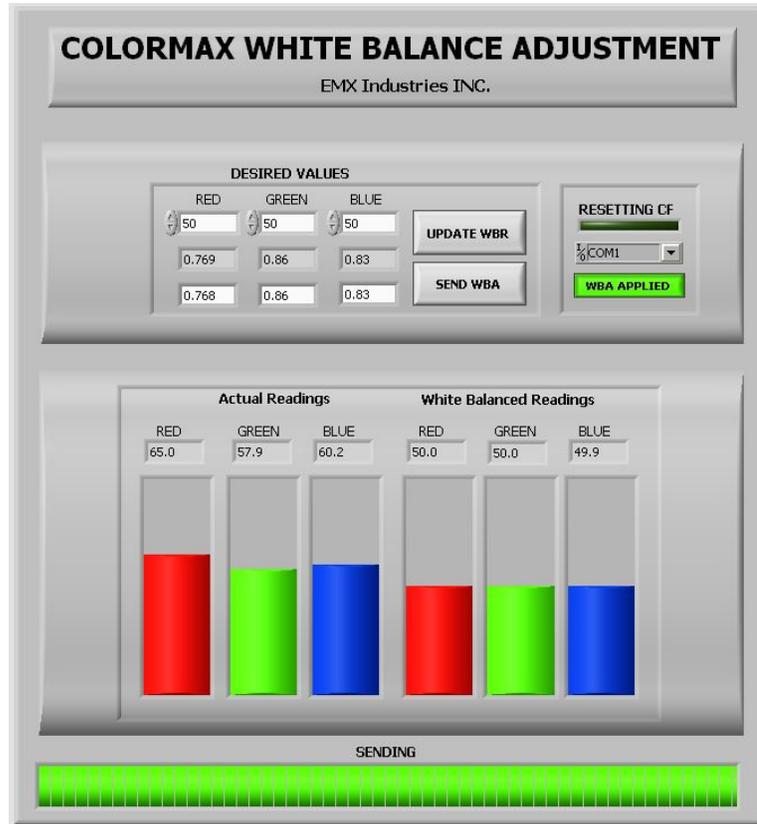
After the resetting of the correction factors, the current RGB levels are displayed in the actual readings.



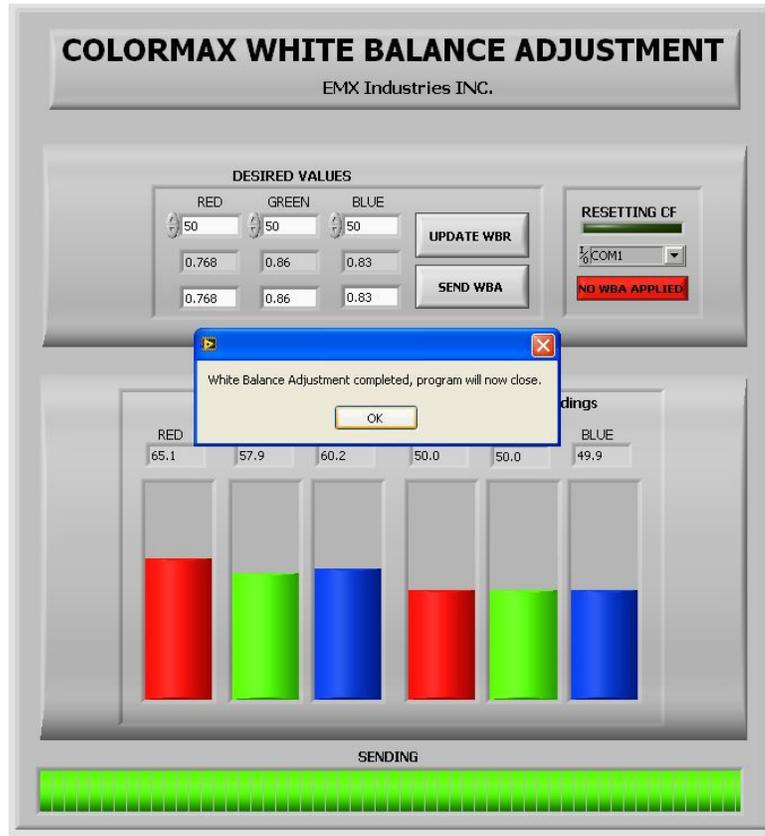
**STEP 3:** Determine the desired readings, and enter the values into the Red, Green and Blue boxes. Press the Update WBR, and observe the adjusted values in the White Balanced Readings display.



**STEP 4:** Confirm the desired values are displayed and press the SEND WBA button to transmit the readings to the ColorMax.



The adjustment is completed and the White Balance Adjustment program is stopped. Press OK.



Close the White Balance program and re-launch the program to adjust additional ColorMax sensors.

## Sending White Balance Adjustment Values

An alternative method for sending the adjustment factors to the sensor is via the serial communications link (available on some models). The range of the adjustment factors is 0.5 to 2. All adjustment factor data is in hexadecimal format with 1 significant digit, fixed decimal point position. For example an adjustment factor of 1.000 is entered as 2710 (hexadecimal).

Command **!k** will initially return **!k,2710,2710,2710**, indicating an adjustment factor of 1.000 for each color.

The correction factors may be sent to the sensor in the following format:  
**!K,2710,2710,2710** (red adjustment, green adjustment, blue adjustment)