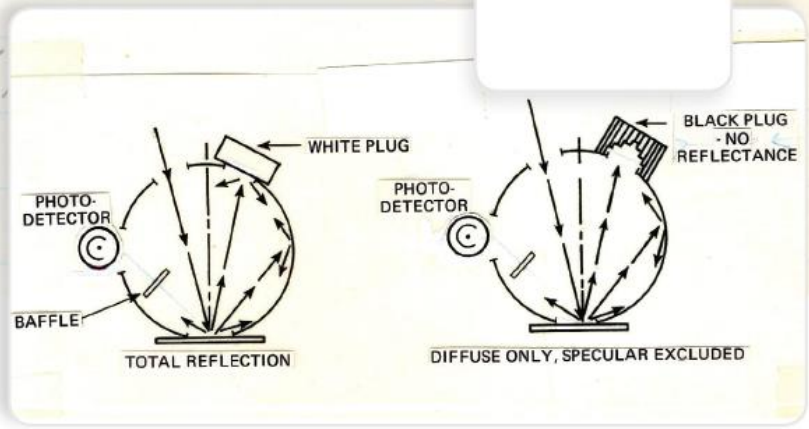
Measurement Method

MM 5241.00



Measuring Nuts

with Aeros®

Color is a key indicator of quality in the nut industry and developing an acceptable color range is an important part of the classification process for monitoring raw and roasted nuts. From tree nuts to peanuts, raw to roasted, consumers rely on color for acceptability, and Aeros provides just the right color measurement solution to meet the quality standards of visual perception.

The Application

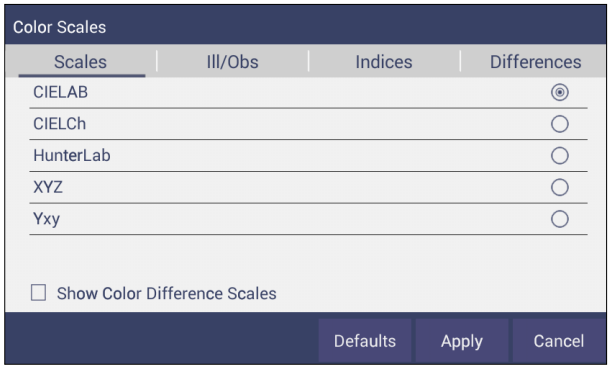
Aeros is a reflectance-only instrument capable of measuring the color of irregularly shaped/textured products without sample contact. Samples are placed in a tray or container that rotates under the sensor head and data is gathered over time. With features like Auto Height Positioning, a rotating sample platform, large touch-screen display, and smart communications, the innovative Aeros is the best choice for color measurement of nuts.

Recommended Measurement Parameters:

Color Scales	**CIELAB**
Color Indices	**BCU (Baking Contrast Units)**
Illuminant/Observer	**D65/10**
Accessories	**6 or 12-in pan**

Measurement Method-Standalone (Using Aeros Essentials)

1. **Configure** Aeros Essentials software to Measure and Report CIELAB**.**
    a. ***WORKSPACE > COLOR SCALES*** select CIELAB or your desired color scale, illuminant, and observer.

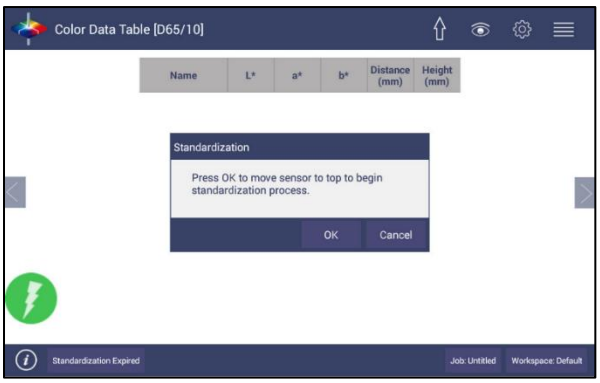


Select Color Scales

    b. Move to the next tab and select ***ILL/OBS***. Also select any indices or differences desired. Press ***APPLY*** and return to the Color Data Table.

    c. To save the above setup for future use, click ***WORKSPACE > SAVE WORKSPACE***. When prompted to Save, select ***NO*** to create a new Workspace Name. Enter the **NAME** of the Workspace.

2. **Standardization**.
    a. Go to ***WORKSPACE*** > ***STANDARDIZATION***. You can also press the Standardization button in the Status bar as a shortcut. Press ***OK*** to move the sensor to top.



Move Sensor to Top

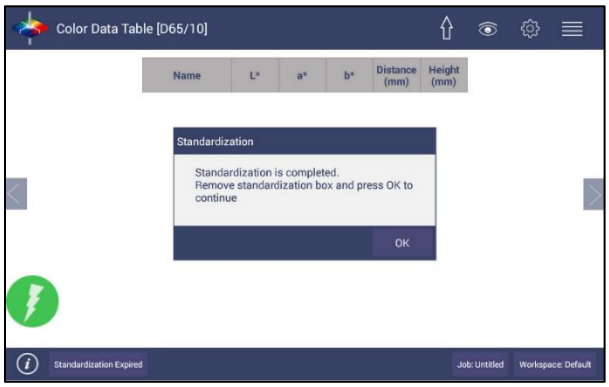
b. **Read Black Glass**. When the sensor stays at the top, attach the standardization box to the sensor. Then attach the black glass to the standardization box and press ***READ***.

Read Black Glass

c. **Read White Tile**. Remove the black glass and attach the Aeros white tile to the standardization box. Press ***READ*** to continue.

Change to White Tile

d. Remove the calibration box when standardization is complete. The instrument is ready to read samples.

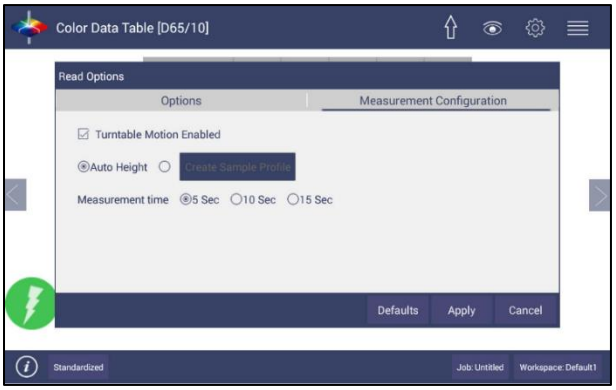


Completed Standardization

3. **Measure Samples**.

   a. Go to ***READ OPTIONS > OPTIONS*** and select ***AVERAGING*** or ***CONTINUOUS READ INTERVAL***. For nuts, the Continuous Read Option is good to determine the variability within the tray.

   b. Go to ***READ OPTIONS > MEASUREMENT CONFIGURATION*** and select ***AUTO HEIGHT*** and ***TURNTABLE MOTION ENABLED***. Press ***APPLY***. Alternately, you may choose ***CREATE SAMPLE PROFILE*** to allow the Aeros to look at the specimen ad select the optimum fixed distance from the turntable.



Select Read Options

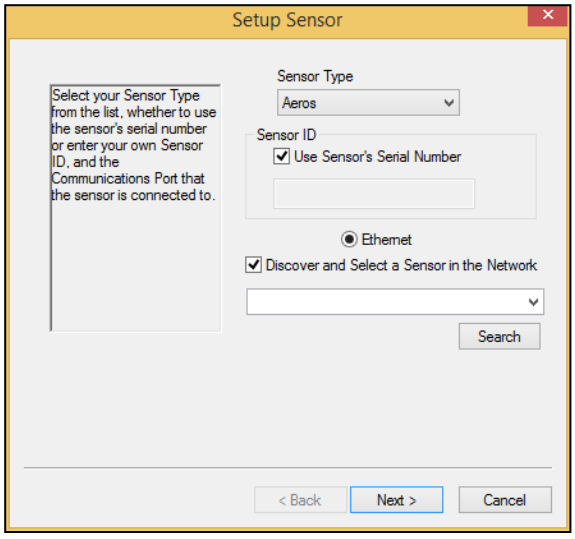
   c. Pour the nuts into the desired sample tray achieving a sample depth of at least 1 inch such that the nuts completely cover the bottom of the tray. Level the surface to minimize any peaks and valleys. Place the tray in the center of the rotating platter.

d. Press the ***READ*** button to obtain the color measurement values. The sensor will adjust the distance to the sample for optimal accuracy and begin measuring. The tray will rotate as the sensor flashes indicating measurements being made, and the results will be displayed on the screen.

Measurement Method - Connect to EasyMatch QC

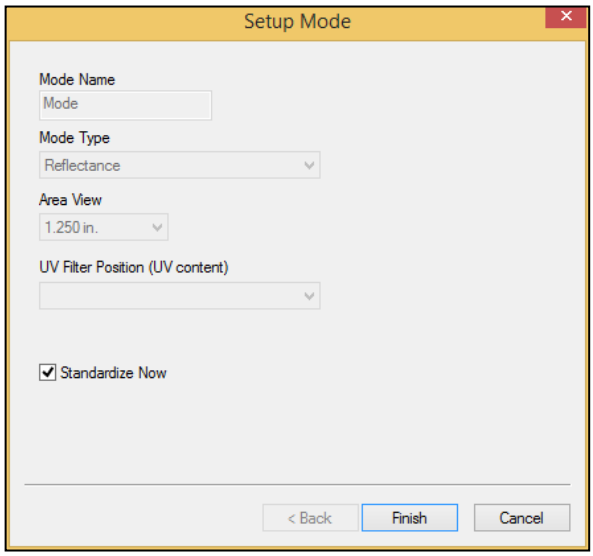
1. **Connect** Aeros to EasyMatch QC. Please check the methods on how to connect Aeros to EasyMatch QC in this article at our support website.

   a. **Add Sensor**. Select ***SENSOR > INSTALL & CONFIGURE > ADD SENSOR***. Select Aeros as the sensor type and select ethernet to connect Aeros with EasyMatch QC. Click ***SEARCH*** to find the available Aeros.



Add Aeros Sensor

   b. Click ***NEXT*** to continue. The **SETUP MODE** screen will be shown. Check ***STANDARDIZE NOW*** and ***FINISH*** to initiate Standardization.

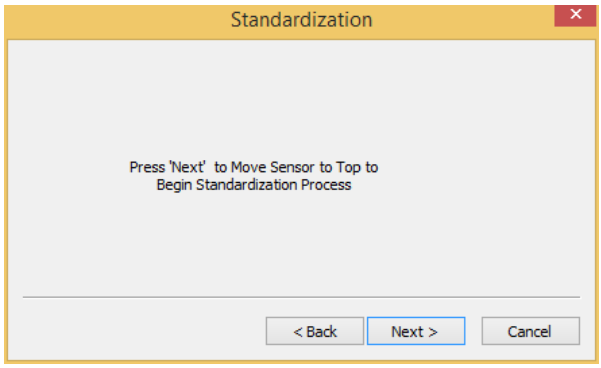


Setup Mode

2. **Standardize**.

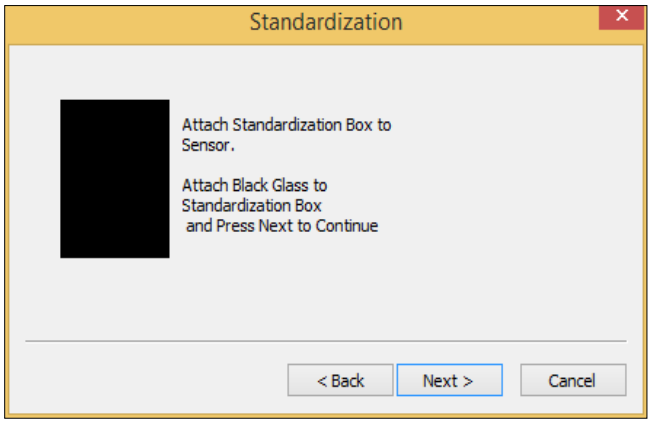
   a. The ***SENSOR > STANDARDIZE*** command leads you through the standardization procedure for the standardization mode currently selected using the ***SET MODES*** command. The keyboard shortcut for this command is ***F4***.

   b. The sensor moves to the top.



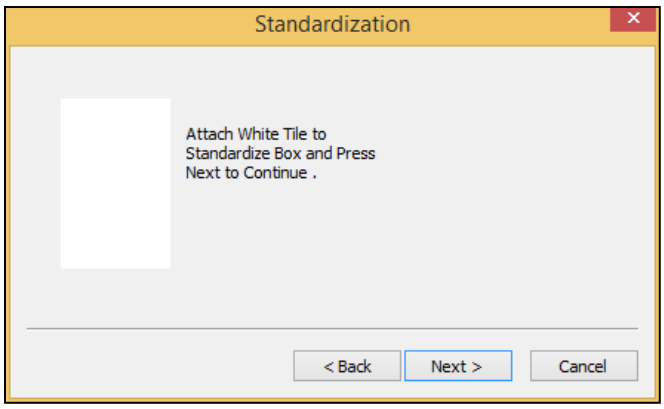
Begin to Standardize

   c. First, attach the **STANDARDIZATION BOX** to the Sensor. Then attached the **BLACK GLASS** to the Standardization Box and press ***NEXT*** when you are ready to read the zero.



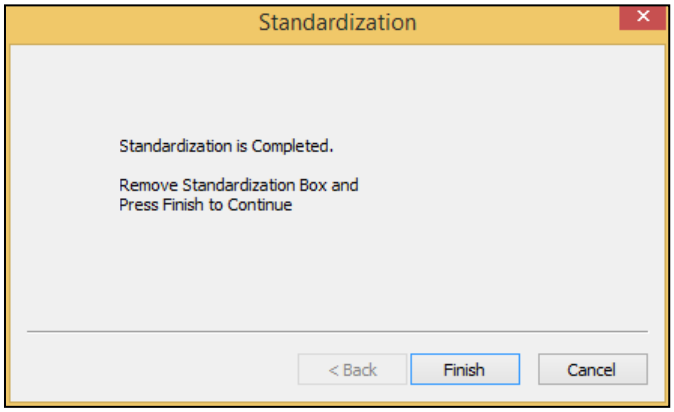
Standardization: Bottom of Scale

d. Then, replace the Black Glass with the White Tile. Click ***NEXT*** when you are ready to read the standard.



Standardization: Top-of-Scale

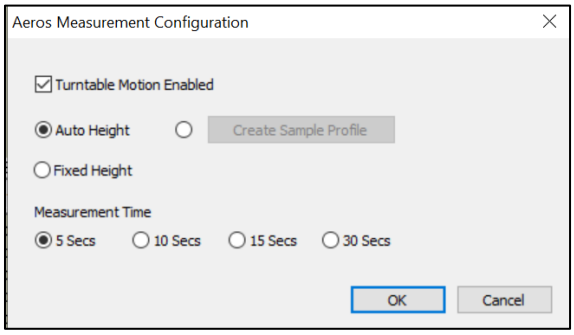
e. Click ***FINISH*** when standardization is complete.



Standardization Complete

3. **Sensor Configuration**

    a. To adjust the measurement parameters for the Aeros, go to ***SENSOR > AEROS MEASUREMENT***. Select **TURNTABLE MOTION** to enable rotation. When **AUTO HEIGHT** is selected as a default, the sensor head will adjust its position to read samples automatically for each sample measurement. The **CREATE SAMPLE PROFILE** button will allow the Aeros to look at the specimen and select the optimum fixed distance from the turntable. When this is pressed, the Sensor will move to the Top position. When profile is complete, press ***OK*** to continue. The sample height will be shown next to the **CREATE SAMPLE PROFILE** button.



Sensor > Measurement Configuration

The **MEASUREMENT TIME** is the amount of time used to average the readings together. The longer the time, the more the averaging.

b. Select one of these options and press ***OK*** to continue.

4. **Configure Color Data Table** to measure CIE Lab.

    a. In EasyMatch QC***, right click*** on the **COLOR DATA TABLE** view and select ***CONFIGURE***. This command allows you to set various preferences pertaining to the Color Data Table view. Select each **SCALE, DIFFERENCE, INDICE**, and **TEXT** field parameter you would like to display from the drop-down boxes and click the ***LEFT ARROW*** (**<<**) button after each selection to move it to the **SELECTED ITEMS** box. Once all desired items are shown in the Selected Items box, you may move them up and down in the display order using the up and down arrows. Items may also be removed from the Selected Items box using the **REMOVE** button.

    Highlight (select) each **ILLUMINANT/OBSERVER** combination you wish to display. Choose your **STATISTICS** the same way. You may indicate the order in which you would like the illuminant/observer tabs and statistical parameters displayed by deselecting all items that have already been chosen and then selecting the items for display in the order desired.

5. **Measure Samples**.

    a. Pour the nuts into the desired sample tray achieving a sample depth of at least 1 inch such that the granules completely cover the bottom of the tray. Level the Surface to minimize any peaks and valleys. Place the tray in the center of the

rotating platter.

b. Press the ***READ*** button to obtain the color measurement values. The sensor will adjust the distance to the sample for optimal accuracy and begin measuring. The tray will rotate as the sensor flashes indicating measurements being made, and the results will be displayed on the screen.

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About HunterLab

HunterLab, the first name in color measurement, provides ruggedly dependable, consistently accurate, and cost effective color measurement solutions. With over 6 decades of experience in more than 65 countries, HunterLab applies leading edge technology to measure and communicate color simply and effectively. The company offers both diffuse/8° and a complete line of true 45°/0° optical geometry instruments in portable, bench-top and production in-line configurations. HunterLab, the world's true measure of color.