User's Manual for Vista® and EasyMatch® Essentials 2.0

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The world's true measure of color
HunterLab

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A60-1021-530 Version 1.0
For EasyMatch Essentials 2025.1 and Above

Preface

Copyrights and Trademarks

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Safety Notes

Caution: If the equipment is used in a manner not specified by HunterLab, its overall safety and protection may be impaired. The instrument is for indoor use only and unsuitable for wet locations.

For your safety when using the Vista, you should pay attention to the following types of statements in this User's Manual:

- ***General safety instructions that should always be observed while operating the instrument.***
- ***Specific safety instruction critical to the type of instrument operation being explained in the manual where the caution appears.***
- ***Use of this equipment in a manner not specified by the manufacturer may impair the protection afforded by the equipment.***
- ***Danger of electric shock if liquids are spilled and fire if volatile or flammable liquids are spilled. Use care when measuring liquid samples.***

Legal Disclaimers: Instrumental – Visual Evaluation

The HunterLab Vista Colorimetric Spectrophotometer is designed for precision color and appearance measurement. It measures numerical color and related data in absolute and relative terms.

HunterLab cannot guarantee the accuracy, completeness, efficacy, and timeliness of the data

due to inherent uncertainties in instrumental readings, variations in sample presentation, and potential inconsistencies in human color perception. Users are strongly advised to verify the instrumental data with meticulous visual evaluation.

Disclaimer of Liability: Utilization of Data, Metadata and Information

Hunter Associates Laboratory, Inc. (including its employees, agents, and assignees) assumes no responsibility for consequences from the use of the data derived from its color measurement devices or from the information contained herein or in any respect for the content of such information, including but not limited to errors or omissions, the accuracy or reasonableness of factual or scientific assumptions, studies or conclusions, the defamatory nature of statements, ownership of copyright or other intellectual property rights and the violation of property, privacy or personal rights of others. Hunter Associates Laboratory, Inc. is not responsible for and expressly disclaims all liability for damages of any kind arising out of use, reference to, or reliance on such data and/or information. No guarantees or warranties, including but not limited to any express or implied warranties of merchantability or fitness for any particular use or purpose made by Hunter Associates Laboratory, Inc. for such data and/or information.

Contents

Instrument Setup and Overview

What is HunterLab Vista & EasyMatch Essentials?

Vista is a transmittance-only color measuring instrument capable of measuring color and haze of transparent and translucent liquid, films, and plaques and transparent extruded or formed blanks. All samples are measured by placing them in the transmittance compartment, either at the sphere port or receptor port. The size and nature of the sample will determine how the sample is presented and the type of sample handling device that is deployed. Sample handling will include cuvette, cells, and ampules for liquids and film holders for sheets and films.

Standard Accessories

The Vista includes the following standard accessories :

- Didymium diagnostic filter
- Certificate of Compliance
- Power Supply
- Stylus
- Cleaning Cloth
- Certificate of Traceability
- Power Supply
- Initial Customer Instructions before Unpacking Guide
- Vista Quick Start Guide
- User's Manual on USB Flash Drive

Selecting an Installation Location

To achieve optimal performance and accurate measurements, the Vista should be installed in a controlled laboratory environment that adheres to the following guidelines.

Installation Environment

- Choose a stable location with consistent temperature and humidity within operational ranges.
- Ensure the workspace is clean and free from airborne contaminants such as dust, particulate matter, and aerosols.
- Avoid areas with drafts or vibration that could interfere with measurements.
- Provide proper room lighting to ensure visibility during operation.

Placement and Access

- Place the instrument on a stable, vibration-isolated surface to minimize disruptions.
- Maintain clear access to the rear connectors for power and network connections.

Power Requirements

The instrument requires: Voltage: 100-240 VAC; Current: 3.75A; Frequency: 47/63 Hz; Single Phase power with a maximum load of 60 VA; Compliance with Installation Category (Over

Voltage): II. .

Sample Handling and cleanliness

- Follow strict protocols for handling and preparing samples to prevent contamination of the instrument.
- Use clean tools and materials to avoid introducing dust or debris into the measurement area.
- Train laboratory personnel in cleanroom-like protocols, including appropriate attire and mindful handling of samples and equipment.

Safety Guidelines

To operate the Vista safely:

- Do not view the instrument LED's directly as it may be damaging to the eyes.
- Avoid submerging the instrument in water to prevent damage.
- Do not attempt to disassemble the instrument, as it contains no user-serviceable parts.
- Do not clean or access optical components without proper guidance or instructions.
- Only open the instrument or remove covers as instructed in this manual or under the guidance of HunterLab Technical Support.

For more information, please refer to **SPECIFICATIONS**.

Note: As outlined in this document, failure to comply with these conditions and protocols may adversely affect the instrument's performance

Unpacking your Box

Place the Vista on a stable bench. It can be positioned with the port facing up or forward.

Retain the packaging in case the instrument is returned to HunterLab.

User-Facing Features

Touchscreen Display

The Vista features a seven-inch high-resolution touchscreen display, which serves as the primary interface for operating the instrument. The screen provides intuitive access to the EasyMatch Essentials 2 software, allowing users to view sample data, manage workflows, and adjust instrument settings. .

USB-Connectors

The Vista has one USB-A connector on the front side and one USB-A connector on the back side. The one in the front is typically used for Export Jobs, WorkSpaces, and update software through a flash drive. Additionally, a USB hub can be attached to the front USB-A port to connect multiple USB devices, such as flash drives or keyboards, simultaneously

Figure 1. USB Port

Power Input and Rear I/O Features

The instrument is supplied with a 12 VDC (5A) power supply. Plug the power supply into the power input located at the back bottom of the Vista. To turn on the Vista, use the power switch located on the right side of the instrument.

Figure 2. On/Off Switch

The Rear I/O board includes the following components:

- **Power Input:** Plug the power supply into the power input.
- **Ethernet Port:** Connects the Vista to a network for data output when connected with HunterLab Essentials on a PC, and other networked plant systems.
- **Micro USB-B Connector:** It can be used to connect a printer or a keyboard.

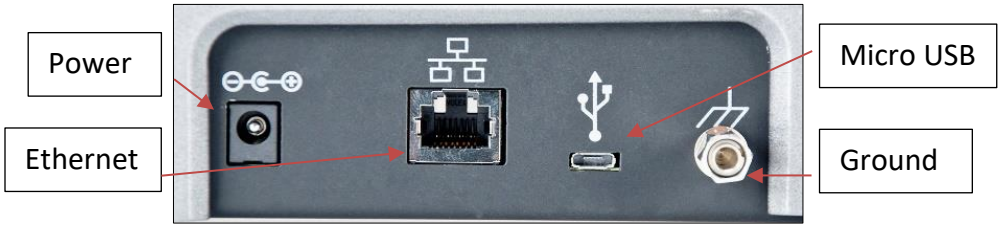


Figure 3. Ports on the Back of the Vista

CAUTION

Note: Use only the power cord included with this instrument or a replacement obtained from HunterLab. Be certain that the power cord is in good condition before connecting it.

Keyboard and Mouse

- The Vista works with the following keyboard and mouse:
- L02-1017-434 Wireless keyboard and mouse kit.

Initial Essentials Setup and Measurement Guide

Powering On the Instrument

After unpacking and setting up the instrument, turn on the power using the power switch on the back of the instrument base.

First Time Setup and Introductory Tutorial

When the Essentials software launches for the first time, it displays the **FIRST TIME SETUP** dialog. Configure the language, region, date, and time, then tap DONE to proceed.

Next, the ***WELCOME WIZARD*** guides you through an overview of the instrument and software features. To exit the wizard, tap the X in the top-right corner. Relaunch the wizard anytime by tapping the HunterLab icon in the top-right corner.

Default WorkSpace Settings

After the wizard, the main measurement screen, EZ View [D65/10], is displayed. . Essentials loads with 'CIELAB [D65/10]' default WorkSpace
configured as follows:

Table 1.

Color Scale:	CIE L*a*b*
Indices	None
Differences	None
Illuminant/Observer:	D65/10°(CIE 1964 observer)
Port:	31.8mm (1.25")
Views	EZ View
Standard Type	Ad hoc/Working

Note: Essentials software includes two default WorkSpaces, 'CIELAB [D65/10]' and 'HunterLab [C/2]'. These WorkSpaces cannot be modified directly. However, you can edit them and save them as new ones or create a new WorkSpace and then edit there.

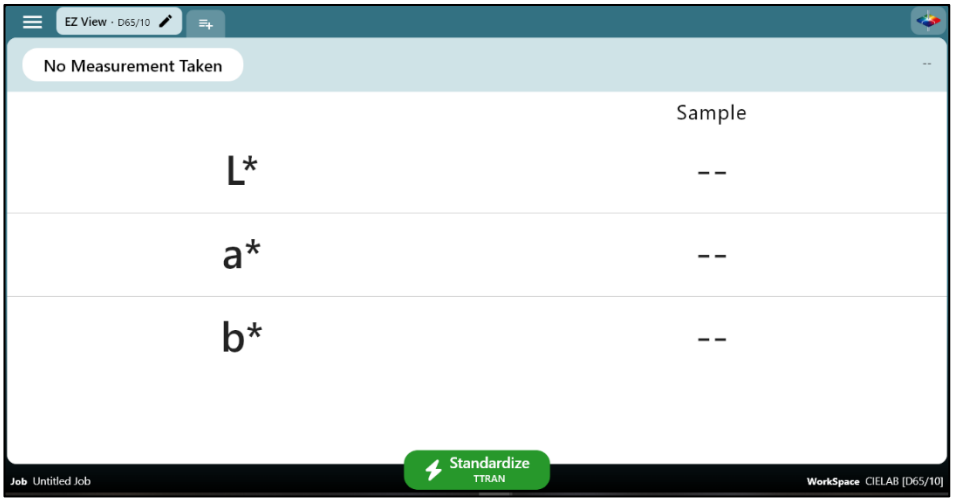


Figure 4. EZ View Default Settings

Standardization

The Vista's standardization process is fully automated and requires no user interaction. The default workspace is set to Total Transmittance (TTRAN) without Haze.

Note: To standardize in TTRAN with Haze or Regular Transmittance (RTRAN), create a new workspace by clicking the Workspace Name button at the bottom right of the screen, then configure the Standardization Mode accordingly.

To begin, select ***STANDARDIZE*** at the bottom of the screen.
Make sure that the sample compartment is empty or contain a cell blank. Press CONTINUE.
The system will standardize automatically.

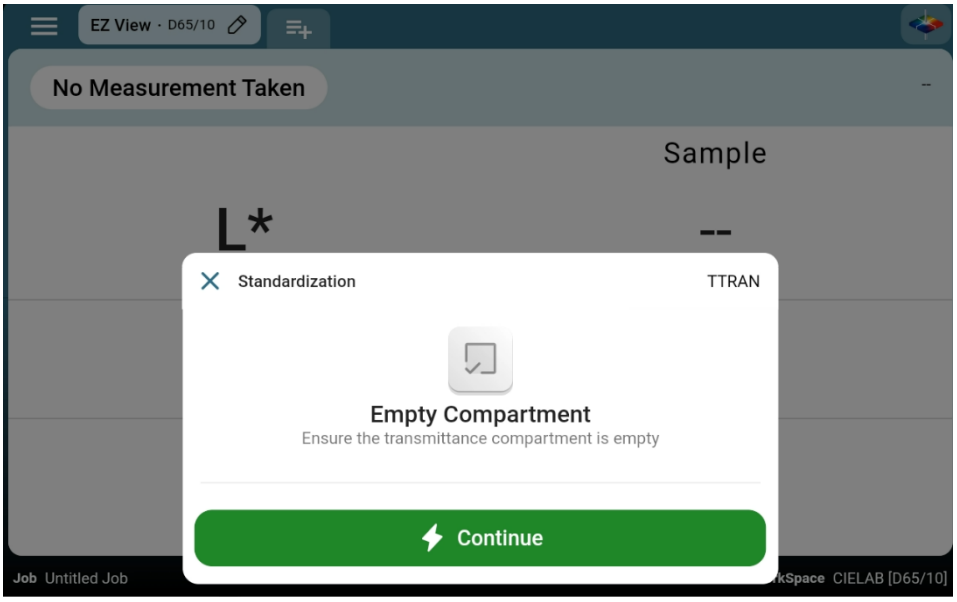


Figure 5. Reminder to Empty the Transmittance Compartment

READING A SAMPLE

1. Prepare your sample and place it into the transmittance compartment. To measure Total Transmittance, place your sample next to the sphere.
2. Press ***MEASURE***. . The first reading will be treated as a standard since the CIELAB (D65/10) default WorkSpace uses the Adhoc/Working standard type.
3. To set another sample as the standard in this job, measure the sample, tap its name, and select **SET AS STANDARD**.

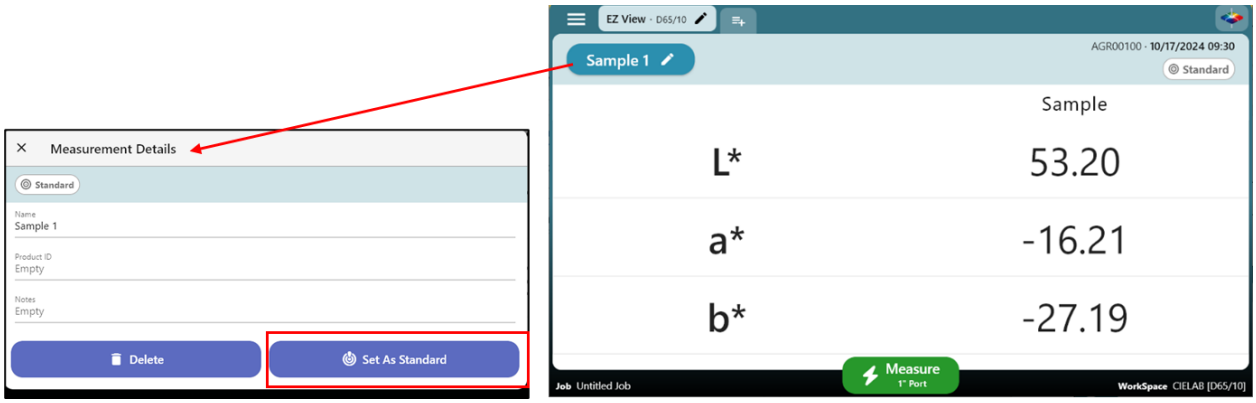


Figure 6. Set a Sample as Standard

4. In the **MEASUREMENT DETAILS** dialog, click on the associated line to edit the **SAMPLE NAME**, **PRODUCT ID**, and **ENTER NOTES**. Use the **DELETE** to remove a sample measurement.

Editing EZ VIEW

Sample Name Box

Located at the top-left corner of the screen, this box allows you to edit the sample name, delete it, or set it as the standard by tapping on it. The box is highlighted with a color corresponding to the measured color, offering a quick visual reference. .

Information Area

Located at the top-right corner of the screen, this area displays the instrument's serial number, time, date, and Pass/Fail status. If the measurement is a standard, it will be labeled as a Standard in this area.

Display Options

Tap the pencil icon in the EZ View box and select ***DISPLAY OPTIONS***. Choose the radio buttons next to ***SHOW STANDARD*** and ***SHOW DIFFERENCES*** to display the differences. All changes to the view are automatically saved to the current workspace. For more details on view editing, refer to **VIEWS**. .

Changing or Adding WorkSpaces and Jobs

WorkSpaces in Essentials are similar to product setups. Jobs under a WorkSpace serve as

associated data files. Once a WorkSpace is launched, you can create a new job or open existing jobs under this workspace.

To change or add a **WORKSPACE**, tap the WorkSpace name at the bottom-right of the screen. Edit settings such as **DIFFERENCES/INDICES**, **READ OPTIONS**, and **DATA EXPORT OPTIONS**. To manage jobs, tap the **JOB** name on the bottom left side of the screen to create a **NEW JOB** or tap one existing job to **EDIT JOB NAME, DELETE JOB** and **EXPORT JOB** (.csv file).

Alternately, tap the ***SYSTEM MENU*** at the top left corner of screen and select **JOBS/ WORKSPACE** to change or add new Jobs/WorkSpaces.

Additional settings including **INSTRUMENT SETTINGS**, **DATA MANAGEMENT**, **PERIODIC DIAGNOSTICS** and **STANDARDIZATION**, are available in the **SYSTEM MENU.**

Navigating the Essentials Screen

The general screen of EasyMatch Essentials are shown below.

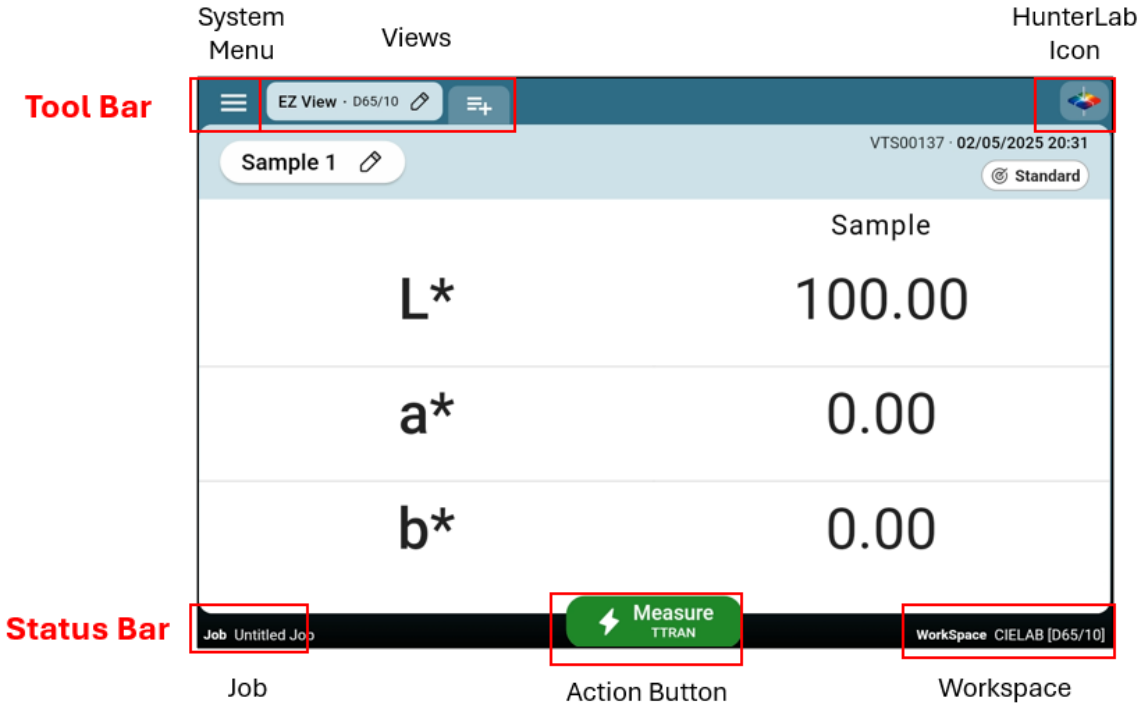


Figure 7. User Interface Screen of Vista Essentials 2

Status Bar – Job, Action Button, and WorkSpace

The Status bar at the bottom of screen includes the following features:

Status Bar: Job

It displays the name of the current job. Tap this button to create a new job or select an existing job to rename, delete, or export as a .csv file.

To manage multiple jobs:

1. Press and hold a job to enable ***MULTIPLE JOB MANAGEMENT MODE***.
2. Both the **TRASH CAN** icon and **EXPORT** icon will appear, allowing you to select multiple jobs for deletion or export.

Note: Each Job files can contain up to 2000 measurement. The measure button will change to a "New Job" button when this limit is reached.

Status Bar: Action Button

The Action Button allows users to perform key operations, such as standardization, taking measurements, or advancing to the next step in a workflow. The physical action button located next to the instrument port serves the same purpose as the on-screen Action Button.

Status Bar: WorkSpace

To change or create a new WorkSpace, press ***WORKSPACES*** in the Status Bar. This action opens a list of all available WorkSpaces.

- The **current WorkSpace** is always listed first.
- Remaining WorkSpaces are displayed either by **Last Used** or in **Alphabetical** Order. Click Search icon to search for a Workspace by name.
- For WorkSpaces with non-Ad hoc/Working standard types, the WorkSpace is highlighted with a color corresponding to the standard it contains, providing a quick visual reference.

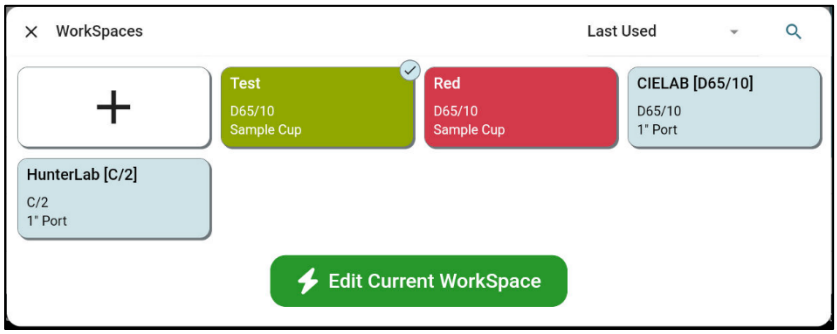


Figure 8. Edit or Create New Workspace

Managing WorkSpaces

Launch a Workspace

- Tap an existing workspace displayed in the WorkSpaces dialog.
- Click the ***LAUNCH BUTTON*** to load the selected WorkSpace.

Create a New WorkSpace

- Tap the + icon to create a ***NEW WORKSPACE***. Select an existing WorkSpace as a template and press ***CONTINUE***..
- Modify the settings for the new workspace as prompted. See ***SYSTEM MENU > WORKSPACE EDIT*** for details.
- ***NAME*** and ***SAVE*** the new WorkSpace.

Delete a WorkSpace
Press and hold a WorkSpace to enable deletion mode. A trash can icon will appear in the right corner, allowing you to select multiple WorkSpaces for deletion. To disable deletion mode, unselect all WorkSpaces. .

Note: Default WorkSpaces and the active WorkSpace cannot be deleted.

Tool Bar – System Menu, Views and HunterLab Icon

The Tool bar at the top of screen includes **SYSTEM MENU**, **VIEWS**, and **HUNTERLAB ICON**.

Tool Bar: System Menu

The **System Menu** is located in the top-left corner of the screen. Tap the three-bar icon to access the following options: .

- **Jobs/Workspaces**
  Alternate ways to open the Job or WorkSpace dialogs for managing data, transmittance modes , color measurement scales/indices, and options such as averaging for measurement.
- **Instrument Settings**
  Configure key settings such as standardization interval, importing product setups from another instrument, changing date and time, selecting a language, display settings, network settings, diagnostic and password security. See **Instrument Settings** for more details.
- **Data Management**
  Export Jobs and WorkSpaces to a flash drive. *(Feature currently under development.)* .
- **Periodic Diagnostics**
  View the status of diagnostics and run diagnostic tests, including Signal Levels, Repeatability, and Diagnostic Check Tile tests. See **Instrument Settings/Diagnostics** for additional information. .
- **Standardization**
  Displays the status of diagnostics and enables users to run standardization.

Tool Bar: Views

The Views section in the Tool Bar displays the current view(s) in the center of the Tool Bar. Available views include:

- **EZ View,**
- **Color Data Table View,**
- **Spectra Data View,**
- **Spectra Plot View,**
- **Color Plot View**
- **Trend View.**

For detailed information about each view, see **VIEWS**.

Managing Views

- **Adding/Removing Views**

  Tap the  icon and select the desired views from the list. ..
- **Reordering Views**

  Tap and hold a selected view, then drag it to the desired position. .
- **Saving Changes**

  Press **SAVE** to apply changes. Once saved, use the tabs in the Tool Bar to navigate between views. .

Note: Each view can only be opened in one tab. Essentials does not support multiple tabs with the same type of view.

Editing Views

- The view currently displayed on the screen is the active view in Essentials.
- Only the active view shows a pencil icon in its tab. Tap the pencil icon to edit the view. .
- If a view is not active, tap it first to display it, then tap it again to access its editing options.
- Press the left arrow at the top of the screen, or anywhere on the view screen to exit View Options.

Tool Bar: HunterLab Icon

The **HunterLab Icon** is located at the top-right corner of the screen. .

Wizard Access

Tap the HunterLab icon to start the wizard. This feature guides you through a series of screens highlighting the software's features. To exit, tap the **X** at the top of the screen. .

Screen Capture

Press and hold the HunterLab icon to enable the screen capture function. Tap **Screen Capture**, and the image of the current screen will be saved to an attached flash drive. .

Note: Other features under HunterLab icon are under development.

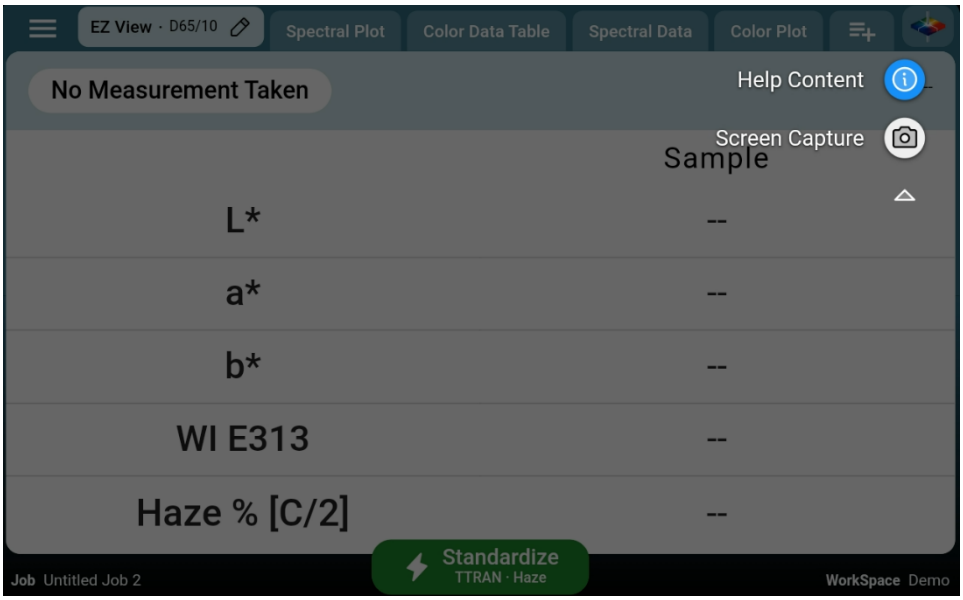


Figure 9. Screen Capture

WorkSpace Edit

In the WorkSpaces main dialog, a check mark (✓) appears in the upper-right corner of the current WorkSpace box.

Edit the Current WorkSpace

Tap ***EDIT CURRENT WORKSPACE*** to modify the current WorkSpace. .

Edit a New WorkSpace

Tap the **+** icon to create a new WorkSpace, then follow the instructions to edit and configure it.

Edit Another Existing WorkSpace:

1. Tap the desired WorkSpace in the dialog.
2. Tap **LAUNCH** to load the WorkSpace.
3. Return to the main dialog and tap **EDIT CURRENT WORKSPACE** to modify the selected WorkSpace.

WorkSpace Edit: STANDARDIZATION MODE

This screen displays fixed options such as **TRANSMITTANCE MODE (Total or Regular)** and **Inclusion of Haze Measurement** for Vista. Press ***NEXT STEP*** to continue. **.**

WorkSpace Edit: STANDARDS & TOLERANCES

The table below shows all the available selections in Standard &Tolerances dialog.

Table 2. Available WorkSpace Selections

Standard Type	Color Scale	Color Differences	Indices	Illuminants	Observers
Ad Hoc/ Working	CIELAB	dE	APHA/PtCo/Hazen, ADMI, ASTM D1500, Saybolt, Gardner	A	2˚
Physical	CIELCh	dE*	YI D1925, YI E313, WI E313	C	10˚
Numeric	HunterLab	dE CMC	Y Transmittance	D50	
Hitch/Transfer	XYZ	dE * 2000	Haze, NTU, EP Opalescence	D55	
	Yxy		EP, JP, CP, USP	D65	
			EBC, ASBC and ASBC Turbidity	D75	
			ICUMSA	F2	
			Lovibond RYBN, AOCS RY	F7	
			Iodine, OffHue, Chinese Acid Wash	F11	
			Transmittance%, and Absorbance	TL84	
				ULT 30	
				ULT 35	

Color Standard Tab

Configure **STANDARD TYPE**, **TRISTIMULUS COLOR SCALES**, and **ILLUMINANTS/OBSERVERS**.

Following are available **STANDARD TYPES**:

Ad hoc/ Working Standard
The first sample measurement is automatically assigned as an Ad Hoc/Working standard. Tolerances can be entered after standard selection. The other sample in a job can be manually set as standard if needed.

Physical Standard
Measure a physical standard in this dialog and use it as standard. Use the Green action button in this dialog to standardize (if there is no valid standardization) and measure the standard. Multiple measurement and their average can also be used as the standard target.

Numeric Standard
This type of standard is defined by numeric values representing standard values. This feature can be used when no physical standard is available. Enter the values for the color scale and tolerances.

Hitch/Transfer Standard
A hitch standard links the values of the current instrument to a Master instrument/standard. This feature allows multiple instruments to read the same values for one product.

Hitch Configuration:

- When Hitch/Transfer is selected, tap **EDIT THE HITCH CONFIGURATION,** the blue highlighted area, and follow the instructions to setup hitch.
- Choose between **HITCH TO TILE** or **HITCH TO INSTRUMENT**. Hitch to Tile refers to using a tile that has already been assigned with a reference value; Hitch to Instrument involves using a sample that was previously measured on the other Instrument.
- Steps **to Configure Hitch:**
  - Press ***CONTINUE***. Place the tile/sample at the port and ***MEASURE***. When measuring a sample, multiple measurements for averaging are available.
  - Enter the values of the **TILE** or the **SAMPLE** from the reference or the compared instrument.
  - Select **ADDITIVE** or **RATIO** Hitch Calculations.
  - Press ***CONTINUE***. The Hitch Adjustment is shown on the **STANDARDS AND TOLERANCE** page.

Color Differences Tab

Tap the **COLOR DIFFERENCES TAB** and check **DIFFERENCES**. As a differences is checked, the pencil icon is displayed at the right side. Tap the pencil icon to configure Tolerances. Scroll down to find additional differences.

Indices Tab

Tap the **INDICES** tab and select the indices needed for the measurement.

- If an index has multiple Illuminant/Observer and pathlength options , the **Index Configuration** dialog will appear. Select the appropriate settings and tap **CONTINUE**. Custom cell pathlength can be configured for some indices.
- A pencil icon appears on the right side of each checked index. Tap the pencil icon to:
  - **Set Tolerances**: Configure absolute or difference tolerances.
  - **Settings**: Adjust bias, gains, or change the settings of Illuminant/Observer and cell pathlength (based on the index).
- **Add Wavelength Index** button at the top of Indices list allows users to add Transmittance (T%) and/or Absorbance data to the indices list.

WorkSpaces Edit: MEASUREMENT OPTIONS

Measurement Configuration:

Three reading modes are provided: **MANUAL**, **AVERAGING,** and **AUTOMATIC READINGS**. Follow the instructions on the Essentials screen to set up the reading mode.

Measurement Prompt Settings:

Edit a default sample name, enable or disable prompts for **SAMPLE NAME, PRODUCT ID,** and **NOTES**.

WorkSpaces Edit: EXPORT OPTIONS

Configure **AUTO EXPORT** to simultaneously send the data string per measurement to a data collection system. Ensure both the Vista and the data collection system are on the same network. Check details in instrument Settings/Network Settings.

Tap ***EDIT*** button in TCP Auto Export to:

- Choose what data is going to be exported in these categories, Color Scales, Differences and Indices, and Other fields. Drag fields in the configuration list to reorder. To remove a field, click the Trash Can icon on the left side.
- Select a delimiter type
- Press ***SAVE*** when finished.
- ENABLE**/DISABLE** Auto Export
- Auto Export Port is fixed as 9001.

In the data collection system, configure the TCP/IP method: Set Vista IP as the server IP and port 9001 to collect data from the Vista.

Views

All views are displayed in the middle of the Tool Bar.

- **View Editing**: Tap the current view (with the pencil icon) to edit. Alternatively, tap another view to load it first, then tap again to open the view options. After editing, press the left arrow at the top of the screen or tap anywhere on the view screen to exit.
- **Add/Remove**: tap the plus icon to change or add views.

Views: EZ VIEW

This view provides a straightforward display of ***STANDARD vs. SAMPLE*** comparisons and **PASS/FAIL** results.

Overview

Sample Name Box
Located at the top-left corner of the screen, this box allows you to edit the sample name, delete it, or set it as the standard by tapping on it. The box is highlighted with a color corresponding to the measured color, offering a quick visual reference.

Information Area
Located at the top-right corner of the screen, this area displays the instrument's serial number, time, date, and Pass/Fail status. If the measurement is a standard, it will be labeled as Standard in this area.

Edit EZ View

To edit, click the pencil icon in the ***EZ VIEW*** tab. At the bottom of the screen, you will find options to edit settings including:

Display Options:
Includes **SHOW STANDARD, SHOW DIFFERENCES, SHOW COLOR PLOT**, and adjusting **PRECISION**. To display a simple difference (sample minus standard), select ***SHOW DIFFERENCES***. **SHOW COLOR PLOT** displays the color difference plot in EZ View, which auto-scales to show differences. Tapping the plot also initiates auto-scaling.

Color Scales:
Select one or multiple tristimulus Color Scales to display.

DIFFERENCES and INDICES:
To select **DIFFERENCES** and **INDICES** to display (go to WorkSpace to add first If not already selected in WorkSpace).

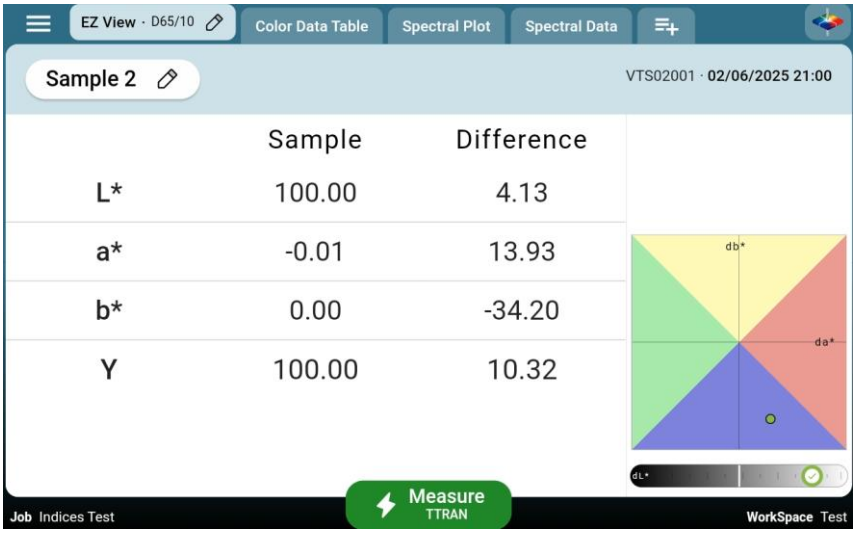


Figure 10. EZ View Display with New Options

Views: COLOR DATA TABLE

The **COLOR DATA TABLE** displays **COLOR SCALE**, **COLOR DIFFERENCE**, and **INDEX DATA** for the standards and all samples in the job. Press and hold a column (except the Name column) to drag and reorder the fields.

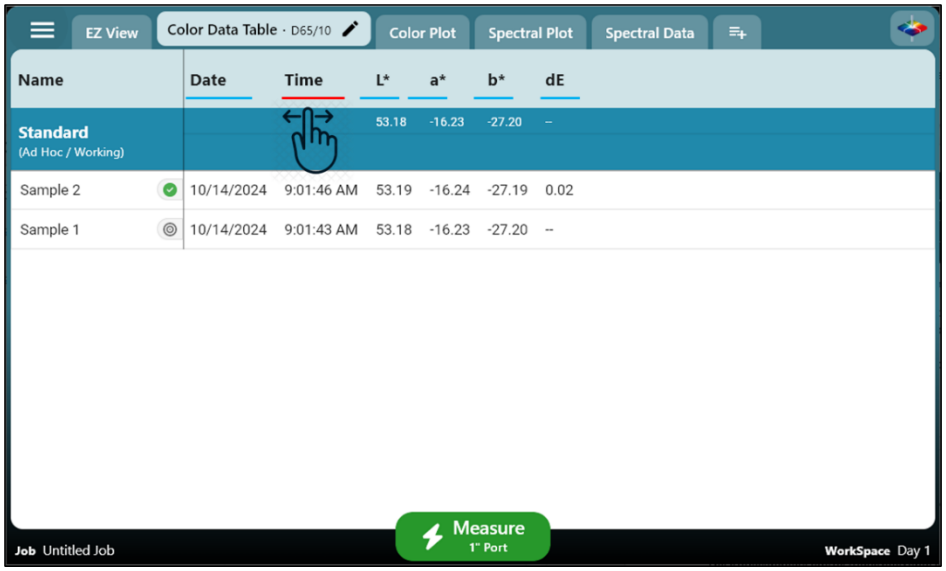


Figure 11. Color Data Display

Settings

Press the edit icon (pencil) in the **COLOR DATA TABLE VIEW TAB**. At the bottom of the screen, you will find options to edit the view settings including:

DISPLAY OPTIONS:
Includes **SHOW STANDARD, SHOW SERIAL NUMBER, SHOW DATE, SHOW TIME, SHOW PASS/FAIL, SHOW PRODUCT ID, SHOW NOTES,** and edit **PRECISION**.

COLOR SCALES
Select one or multiple tristimulus Color Scales to display.

DIFFERENCES and INDICES:
To select Differences and Indices to display (If not already selected in WorkSpace, go to WorkSpace to add them first.).

Views: SPECTRAL DATA TABLE

The **SPECTRAL DATA TABLE** displays the percent reflectance for each selected measurement at the measured wavelengths. A sliding bar at the bottom of the screen provides access to all measurements.

DISPLAY OPTIONS can be accessed using the edit icon (pencil) in the Spectral Data tab. The options include showing the Standard, changing the precision of the measurement data, and selecting spectra data type (T%, Absorbance and %Strength).

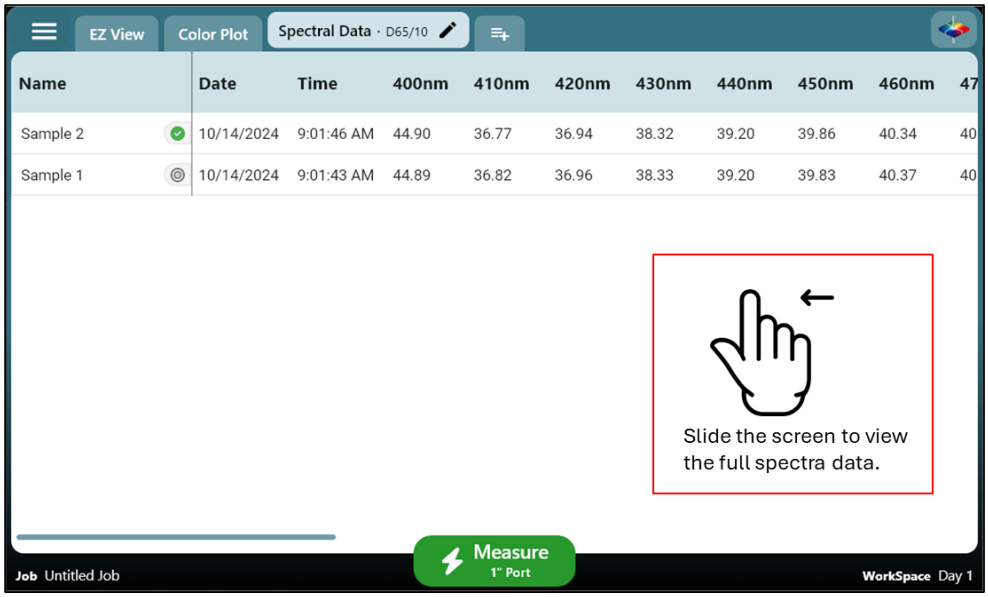


Figure 12. Spectral Data Table

Views: SPECTRAL PLOT

This view displays a graph of reflectance percentage versus wavelength. Use the + button to enlarge the plot or the – button to reduce its size.

SPECTRAL PLOT OPTIONS: SAMPLE LIMIT

This setting controls the number of samples displayed simultaneously, with a maximum limit of 10 samples.

Figure 13.Spectral Plot View

Views: COLOR PLOT

This view displays the sample's position in a two-dimensional Color Space relative to the standard. The standard is the center point for difference measurements, plotting each sample to show variation. Each sample's position is shown without referencing a standard for absolute measurements.

Sample List

The samples displayed on the Color Plot are listed in a box on the left side of the screen.

- **Scaling and Detail:** The Color Plot is automatically scaled . Clicking the data points allows for detailed viewing of each point's information.
- Display options include **SHOW DIFFERENCES** and **SET LIMIT** of samples to show on the plot. The Upper Limit is 10.

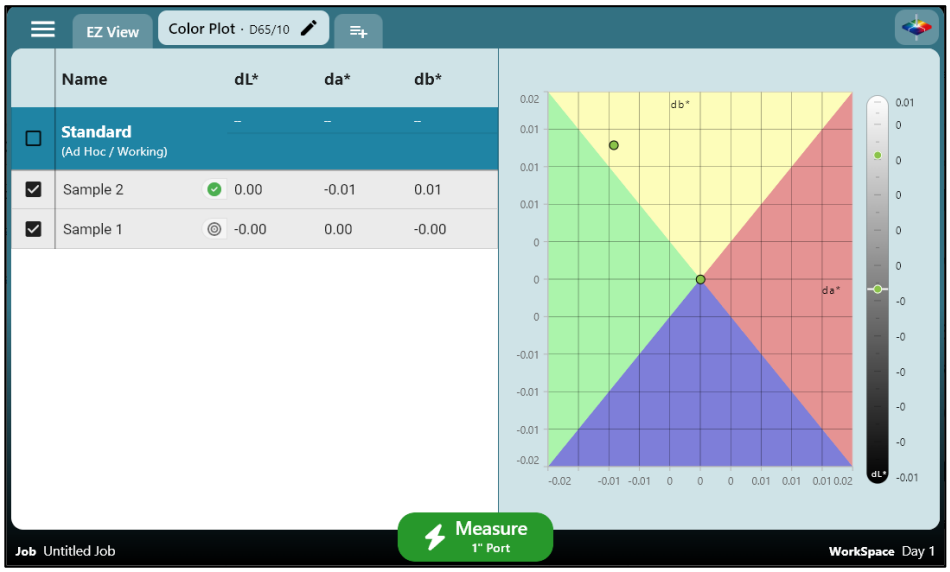


Figure 14. Color Plot View

Instrument Settings

Press ***INSTRUMENT SETTINGS*** under System Menu to edit the current settings for **INFORMATION, GENERAL, DISPLAY & BRIGHTNESS, NETWORKING, DIAGNOSTICS**, and **SECURITY SETTINGS**..

Instrument Settings: INFORMATION

The **INFORMATION** screen provides HunterLab Certification, the Instrument Serial Number, Version number, and Networking Addresses.

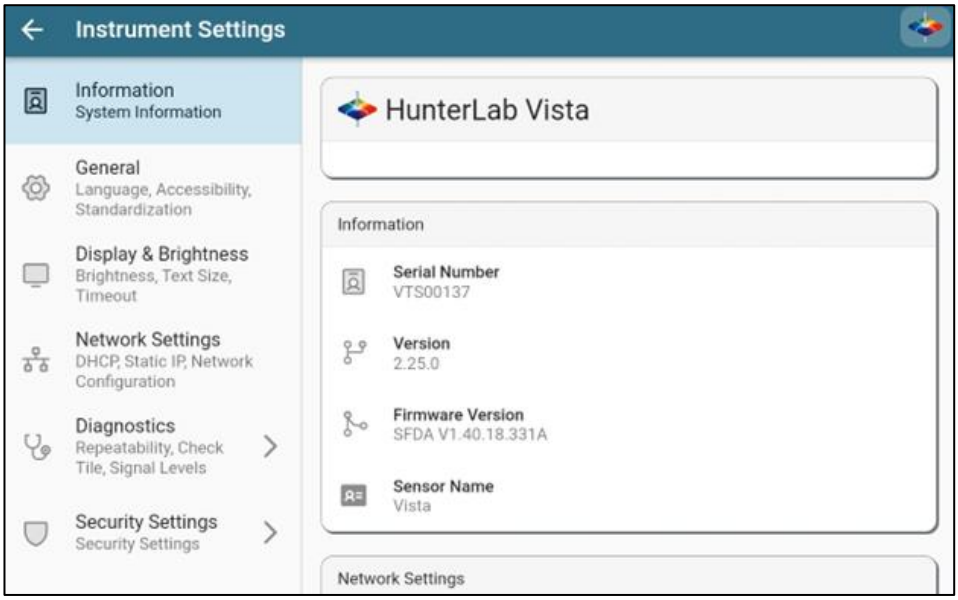


Figure 15. Instrument Information

Instrument Settings: GENERAL

On this screen, you can set the **STANDARDIZATION INTERVAL** to 8, 12, or 24 hours. Additionally, **SYSTEM SETTINGS** allow you to adjust **DATE/TIME** and **LANGUAGE**, **and IMPORT DATA FROM PREVIOUS INSTRUMENT.**

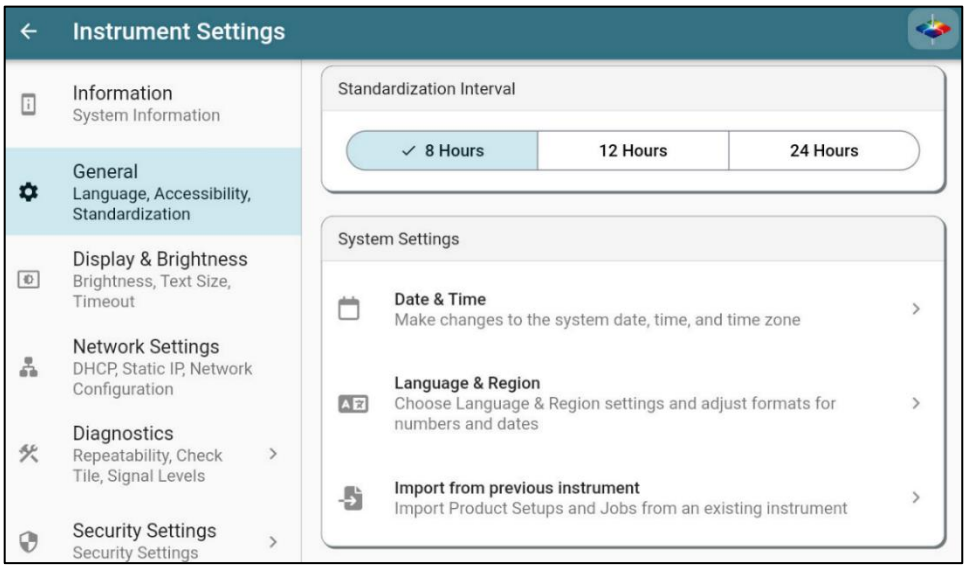


Figure 16. General Instrument Settings

Import Data From Another Instrument

To import data (Product Setups and Saved Measurements) from a Vista instrument, use the USB cable to connect between the instruments. Then tap this feature and follow the prompts to import data from one instrument to the other.

Instrument Settings: DISPLAY AND BRIGHTNESS

Appearance

Changes the display background from white to black.

Text Size

Press the arrow on the right size to change the Font Size. Use the sliding tool at the bottom of the screen to change the font size, or press ***RESET*** to return the font to the original size.

Display Brightness

Use the sliding scale to adjust the brightness.

Activity Timeout

Lowers the screen brightness when the time is reached.

Instrument Settings: NETWORKING

The network settings enable the Vista to automatically export data to a shared network location, connect with HunterLab Essentials for PC on a computer, and support other network functionalities. Network Settings offers the choice between DHCP for automatic IP configuration or Static IP for manual IP entry.

Method 1: Connect Vista to a network hub using Ethernet cables

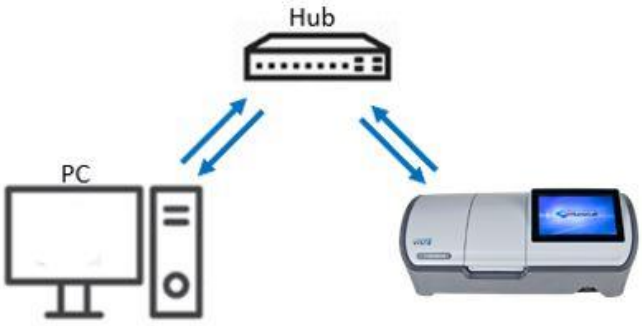


Figure 17. Network Connection Method 1

Connect a Vista and PC to the same network hub using an Ethernet cable. Alternatively, connect a Vista and PC using an Ethernet cable to a stand-alone router with DHCP server features. .

1. Plug the Ethernet cable into the back of the Vista and the other end to a network hub. Plug the PC to this network hub as well.

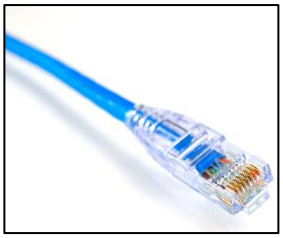


Figure 18. Ethernet Cable

2. In the Vista, go to ***SYSTEM MENU > INSTRUMENT SETTINGS > NETWORK SETTINGS***. Select "Edit". CONFIGURE ETHERNET SETTINGS.
3. Check **USE *DHCP* FOR ETHERNET** and click ***APPLY NETWORK SETTINGS***, then close the Network Settings window.

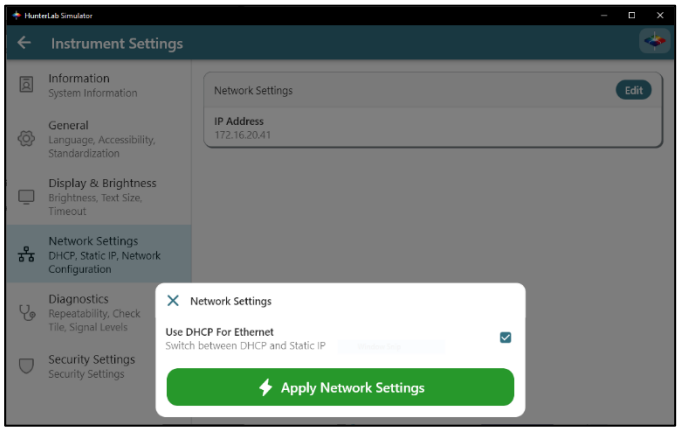


Figure 19. DHCP Network Settings

Method 2: Direct connection between VISTA and computer

Figure 20. Network Connection Method 2

1. Plug the Ethernet cable into the back of the VISTA and the other end to the PC. If the PC does not have any available ethernet ports, a USB-Ethernet adapter can be applied. .

Figure 21. USB to Ethernet Adapter

2. Check the PC IP settings:
   a. For Windows computers, open the command prompt by clicking the Start menu, type "cmd" in the search bar, and select "Command Prompt".
   b. Type in ipconfig and press Enter.
   c. Find the right Ethernet connection (in this case, it is Ethernet Adapter 2) and write down the value under "Autoconfiguration IPv4 Address" and "Subnet Mask".

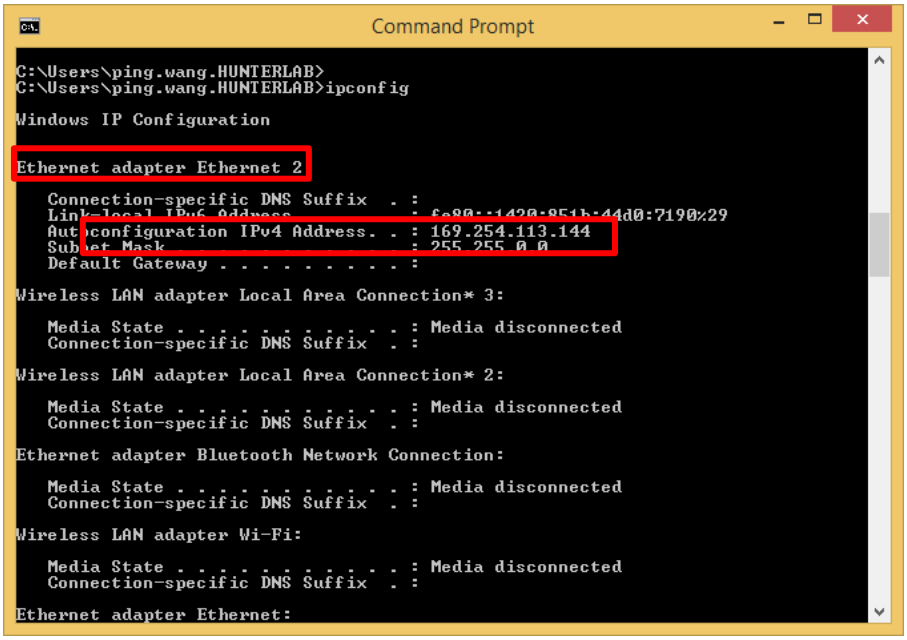
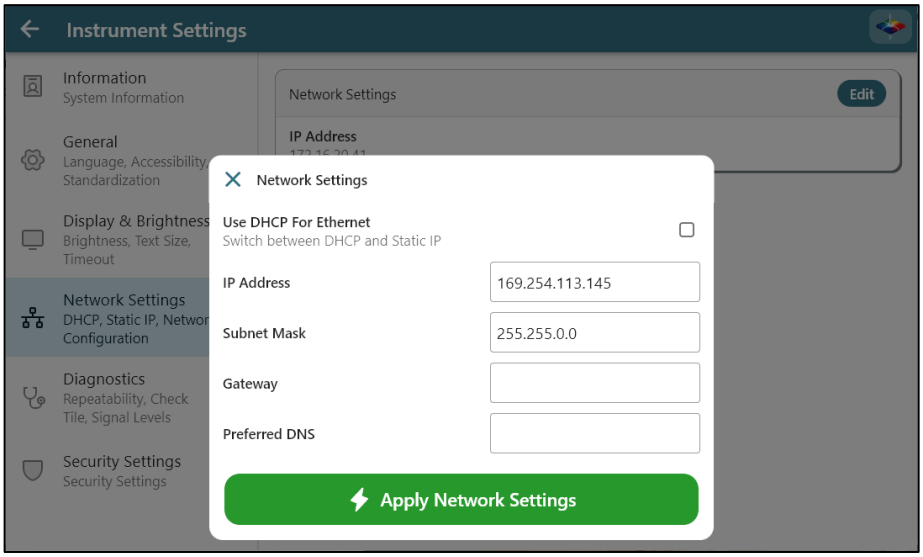


Figure 22. Command Prompt – Ethernet Adapter

3. In the VISTA, go *to* ***SYSTEM MENU > INSTRUMENT SETTINGS > NETWORK SETTINGS***. Select "Edit". ***CONFIGURE ETHERNET SETTINGS***. .
4. Uncheck **USE *DHCP* FOR ETHERNET**.
5. Type in the **IP Address**, **Subnet Mask**, **Gateway**, and **Preferred DNS** manually.
   a. The **IP Address** is equal to the IPv4 of the Ethernet Adapter. Change the last digit to any number from 1-10 that differs from the Ethernet Adapter IPv4 address, for example, 169.254.113.145.
   b. The Subnet Mask is equal to Ethernet Adapter. For example, 255.255.0.0.
   c. Leave the Gateway empty.
   d. Leave the Preferred DNS empty.



6. Select ***APPLY NETWORK SETTINGS***, then close the Network Settings window.

Instrument Settings: DIAGNOSTICS

The Diagnostics menu shows the overall health of the instrument, **LAST DIAGNOSTIC TEST RESULTS,** and **INSTRUMENT DETAILS**. . To exit this menu, use the arrow at the top left side of the screen.

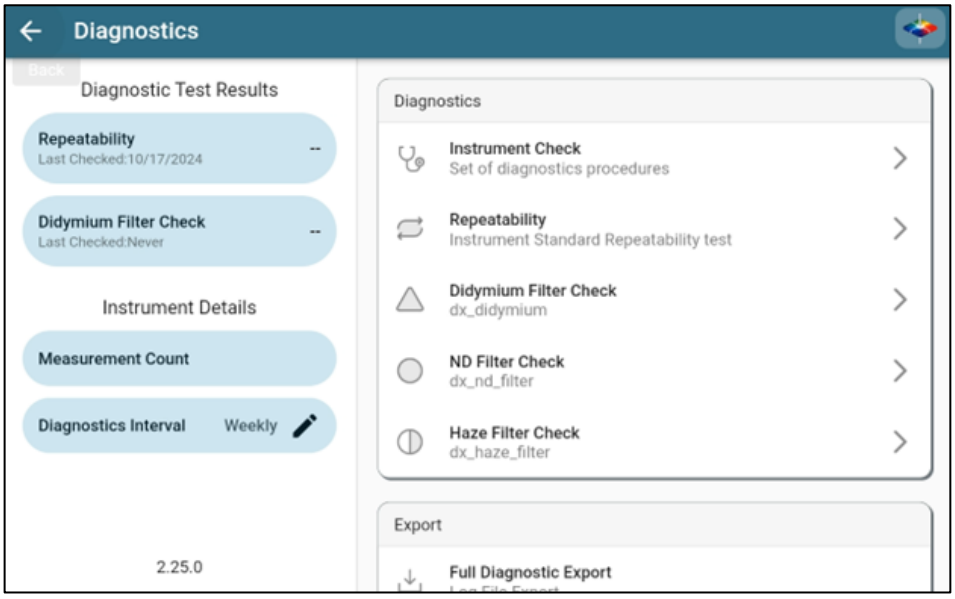


Figure 23. Instrument Health

Repeatability

Select this test to run a group of 30 readings compared to 1 standard reading on the white tile. Ensure that the one-inch port plate is utilized. Tap the Green action button to **STANDARDIZE** and run the test.

Didymium Filter Check

The wavelength test allows you to assess readings of the didymium filter that are provided with the instrument. This checks for wavelength accuracy of the instrument and should be run on a regular basis (i.e., weekly or bi-weekly) as part of a routine instrument performance check. Didymium wavelength targets are saved in each instrument.

1. Remove all samples from the instrument and Standardize in RTRAN on air.
2. Place the didymium filter at the lens side of the instrument (left side). Press START.

Note: The didymium filter should be clean and free of fingerprints.

3. Using an average of the 10 readings, the results are shown.

ND Filter Check

This test requires that you enter the target values for the ND filter.
Once the target values have been entered, remove all samples from the transmittance compartment and press the action button to standardize in RTRAN on air.

After standardization, insert the ND filter next to the lens and the action button. Ten readings are taken and compared to the tolerance as an average.

Haze Standard Check

The Haze test reads the haze standard and provides a pass/fail evaluation based on an average of 10 readings and the value associated with the standard.

- Select ***NEW*** to initiate the Haze Test. ***STANDARDIZE*** the instrument and then enter the Haze C/2° value of the **HAZE STANDARD**.

  Note that the tolerance used is ±10% of the standard value.

- When all readings have been taken, the results are shown**.**

Export Diagnostic Results, Log File And Full Database

Attach a flash drive into the instrument and press the export options here to export data.

Instrument Settings: SECURITY SETTINGS

This function provides a way to enable/disable password protection.

- Follow the instructions on the screen to setup the passcode.
- Select the Secured Functions required passcode, Standardization and/or Data View Editor.
- After this, a password will be required to perform the secured functions.

How to Update Essentials in Vista

Please find the latest version of the Vista Essentials software, along with a document outlining the major changes in HunterLab support website.

Instructions:

1. Download the **HUNTERLAB-type file** onto a flash drive (e.g., *2024.4.2.hunterlab*, where *2024.4.2* is the release number).

   Note: You can rename the file if needed. VISTA Essentials will automatically recognize the file based on its type, not its name.

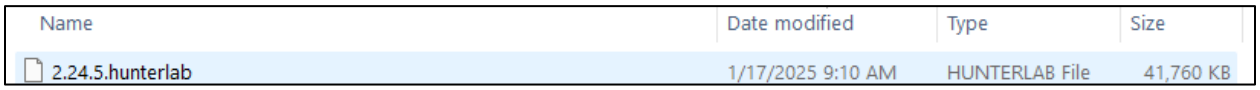


Figure 24. Essential Update File

2. Insert the flash drive into the Vista.
   - Essentials will automatically detect the file on the drive.
   - If the file is a newer version than the currently installed one, Essentials will display a prompt to update.
3. Follow the on-screen instructions to complete the installation of the new Essentials software.

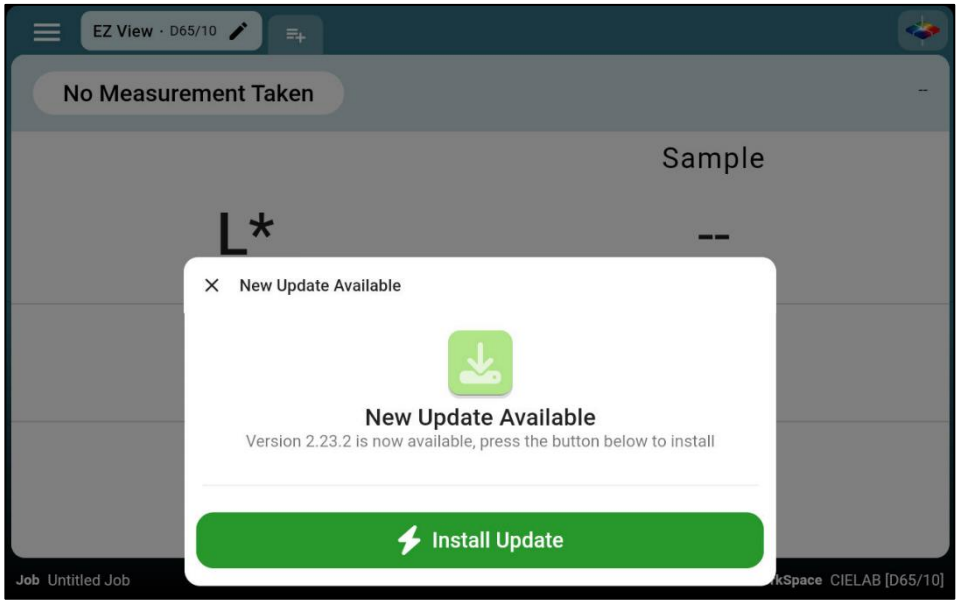


Figure 25. Install Update

Specifications

Instrument Specifications and Setup: This chapter provides detailed specifications and characteristics of the instrument. Place the instrument in a location with sufficient space for optimal performance, moderate or subdued lighting, and no drafts. Recommended operating conditions, including temperature and humidity ranges, are listed in the *Operating Conditions* section below.

Note: Do not leave Vista in an area where temperature or humidity extremes are possible.

Operating Conditions

Storage Temperature (3weeks)	-21°C to 66°C (-5°F to 150°F)
Operating Temperature	10°C to 40°C (50°F to 104°F)
Noncondensing Humidity	10% to 90%

Physical Characteristics

Weight	6.35 kg (14 lbs.)
Dimensions (Height x width x depth)	177.8 cm x 485.8 cm x 228.6 cm (7 in x 19.13 in x 9 in)
Interface	2 USB ports (front and back), Ethernet connection, ground terminal
System Power	90 – 240 VAC, 47 – 63 Hz to universal power supply @ 12 VDC/5A
Display	7-in Touch screen, high resolution 1280x800
Sample Compartment	Cover - Removable to accommodate large samples 108mm x 101.6mm x 187.3mm (4.25in x 40inx 7.38in)
Base to Measurement Port	63.55 mm (2.5 in)
External PC Software	Compatible with HunterLab Essentials for PC

Conditions of Illumination and Viewing

Dual Beam Spectrophotometer	Sealed optics; 256 element diode array and high resolution concave holographic grating
Light Source	Full spectrum LED Array; LED life – 5 years typical
Geometry	Tt/0° or Td/0° per ASTM 1164, CIE 15-2018
Sphere	76 mm (3 in) coated with Spectralon™
Port Size/Measured Area	18.5 mm (0.73 in) illuminated/ 9.8 mm (0.39 in) measured

Transmittance Modes	Total (TRAN), Regular (RTRAN), Haze

Instrument Performance

Spectral Data	Range: 400-700 nm Reporting Interval (nm): 10 nm
Spectral Resolution	<3 nm
Effective Bandwidth	10nm equivalent triangular
Measurement Path length	Up to 100 mm
Photometric Range	0-150%
Measurement Interval	<3 seconds
Measurement Speed (at 23°C)	≤2.5 seconds; 4 flashes
Inter-instrument Agreement	ΔE* ≤ 0.15 CIE L*a*b* (Avg) on Transmittance Filter Set; ΔE* ≤ 0.25 CIE L*a*b* (Max) on Transmittance Filter Set ±0.30% at 10% TH (Haze)
Colorimetric Repeatability	ΔE* ≤ 0.02 on air w/30 readings

Measurement

Data Views	Color Data Table, Spectral Plot, EZ View, Tristimulus Color Plot, Pass/Fail Color indication, time and date stamp, auto-naming, auto-saving, data backup
Illuminants	A, C, D50, D55, D65, D75, F02, F07, F11, TL84, ULT30, ULT35
Observers	2° and 10°
Color Scales	CIE L*a*b*, Hunter Lab, CIE L*C*h, CIE Yxy, CIE XYZ
Color Difference	∆E*, ∆E, ∆E CMC, ∆E 2000
Indices and Metrics	APHA/PtCo/Hazen, ADMI, Saybolt, Gardner, ASTM D1500, Iodine, ICUMSA, EBC, ASBC, ASBC Turbidity, Chinese Acid Wash, Lovibond® RYBN, AOCS RY, FAC, YI E313 Yellowness, YI D1925, WI E313, CIE Y Transmittance, Pharmacopeia -US, Japanese, Chinese, EU, EP Opalescence, Haze, NTU Pass/Fail Color Indication, Time/Date Stamp, Auto-Naming, Auto-Saving, Data backup and recovery.
Data Storage	1 million Records max; 8 GB
Languages	English, German, Traditional and Simplified Chinese, Spanish, Italian

LOVIBOND® is a registered trademark of Tintometer Ltd. UK.

Standard Accessories

Standard Accessories	Didymium diagnostics filter, Certificate of Compliance, Power Supply, Initial Customer Setup Guide, Quick Start Guide, and Vista User's Manual on USB drive.

Standards Conformance

Standards	CIE 15:2004, ISO 7724/1, ASTM E1164, DIN 5033, Teil 7 and JIS Z 8722 Condition E, G

Regulatory Notice

The world's true measure of color
HunterLab

Declaration of Conformity

EU / EMC Directive:	**2014/30/EU Electromagnetic Compatibility** **2011/65/EU RoHS** **2014/35/EU Low Voltage Directive**
Standard to which Conformity is Declared:	**IEC 61326-1: 2021** **EN61010-1 Product Safety**
Manufacturer:	**Hunter Associates Laboratory, Inc.** **11491 Sunset Hills Rd, Reston, VA, USA**
European Representative: Representative's Address:	**Christian Jansen** **HunterLab Europe GmbH** **Murnau D-82418 Germany**
Type of Equipment:	**Transmission Spectrophotometer**
Model No.:	**Vista ®**

I, the undersigned, hereby declare that the equipment specified above conforms to the Directive(s) and Standard(s) above

Place:	*Reston, VA, USA*	Signature	
Date:	*October 24, 2022*	Full Name	*Kyle Fruth*
		Position	*Electrical Engineer*

Document A61-1017-497 Rev F

Vista Maintenance & Safety

Maintenance for the Vista

The Vista is designed to require minimal maintenance. This section highlights the few components of the sensor that need occasional upkeep to ensure the instrument operates correctly.

- **Cleaning the Vista**

  The Vista is NOT waterproof, but the exterior of the case may be wiped with a damp cloth.

- **Cleaning the inside of the Vista**

  Lift the light cover to access the transmittance compartment. The inside may be cleaned with a lens brush or with a small amount of soapy water on a lint-free cloth or towel.

  Note: Do not spray directly into the instrument chamber.

  The light cover can be left in an upright position or removed for sample measurement as it does not affect the sample readings.

  The sphere port can be protected with an optional cover glass. Contact support@hunterlab.com for more information.

- **Haze Standard Care**

  The Assigned % Haze for this standard is a combination of the surface and internal scattering properties of this material. To maintain the surface properties, it is important that the surfaces of this standard are not damaged during normal usage. If the surface is contaminated, a cotton cloth moistened with isopropyl alcohol, or a laboratory glass cleaner such as Sparkleen™ or Alconox can be used to gently wipe the surface. After wiping it, allow it to dry for a minimum of 60 minutes.

- **Didymium Standard Care**

  Check the filter for fingerprints, dust, and other contaminants. If necessary, gently clean the didymium filter with a cotton cloth moistened with Sparkleen™ or Alconox. After wiping allow the filter to dry for at least one hour.

When You Need Assistance

If you need technical or sales assistance on applications, troubleshooting, service, warranty, accessory pricing, and more, please contact the office nearest you:

For the Americas, Support@hunterlab.com

For Asia, AsiaSupport@hunterlab.com

For Europe, EuropeSupport@hunterlab.com

For India, Middle East, and Africa, IMEASupport@hunterlab.com

For all other regions, Support@hunterlab.com

Additionally, our global support website offers 24/7 assistance with a library of information on various color measurement and appearance topics, such as applications, instrument operation, and troubleshooting. The HunterLab global support website is located at **support.hunterlab.com**.

For personalized assistance, go to support.hunterlab.com and locate the **Create A Ticket** button on the menu. Your information is gathered and registered. Our Customer Experience Teams will respond to your inquiry.

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