Vista®
Supplemental Manual for EasyMatch®QC

The world's true measure of color
HunterLab

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Windows is a registered trademark of Microsoft Corporation in the United States and other countries.

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

Caution: There is a potential of a UV Light hazard in using this instrument. Please avoid looking directly at the light.

Contents

HunterLab Vista Features

The Vista is a transmittance-only spectrophotometer with a wavelength range from 400 to 700 nanometers (nm). The instrument can simultaneously measure transmittance color and haze of liquids and non-opaque films.

The on-board software (EasyMatch Essentials) is preloaded with most scales and indices, including Pt-Co/Hazen/APHA, Gardner Color, 3 Pharmacopoeia Standards, and more. The touch screen display is customizable with multiple data views including color data, color view, spectral data, spectral plot and trends and standardization is done with one press of the screen. The footprint is compact and data output can be made to a USB or through the Ethernet port.

Figure 1. Front of Vista

The Vista possesses the following features:

- Simultaneously measures the transmission color and haze of liquids and non-opaque films
- One-touch standardization
- 400-700nm visible range spectrophotometer
- Touchscreen display with customizable workspaces
- EasyMatch Essentials color measurement software
- Preloaded with most scales and indices, including: Pt-Co/Hazen/APHA, Gardner Color, three Pharmacopoeia Standards- US, EU, and Japanese, Haze %, Opalescence, Y Total Transmission, CIE Spectral Data, and more.
- Multiple data views – color data, color view, spectral data, spectral plot, among others
- Small compact footprint
- Digital haze meter

Note: 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.

Transmittance Compartment

The transmission compartment located in the middle of the sensor is used for measuring the transmitted color of transparent solids or liquids. The transmission compartment door can be closed or open while standardizing and taking measurements.

Automated Haze Measurement

The Vista can perform haze measurements automatically using the haze mechanism inside of the instrument. To accomplish HAZE, first standardize on TTRAN (Total Transmittance) and Haze. Then select Haze under indices. For more information, see Standardization for Haze Measurements.

Vista Accessories

The following accessories are provided with the Vista system and can be found in the standards case:

- Didymium filter
- Cleaning cloth
- Stylus
- USB Flash Drive

Vista Installation

Note: The Vista should be lifted from under the base plate, near the center of the unit. It should not be carried by grasping any part of the plastic housing.

The Vista is simple to set up and attach to your computer. The following instructions guide you through the initial installation of your Vista system.

1. Unpack all cartons and remove wrappings and cable ties. Inspect for damage and notify the carrier and HunterLab immediately if any is discovered. Save the packing material in case it becomes necessary to return the instrument to the factory.
2. Place the Vista on a flat working surface where the measurements will be made. Place the computer near the sensor.
3. Ensure that the on/off switch on the back of the sensor is set to off.
4. Connect the power cord to the sensor and plug it into a power outlet.

Note: Refer to the Vista Specifications section of this chapter for recommendations concerning the power line and its conditioning.

CAUTION: 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. The Vista is grounded using the grounding portion of this power cord. Only plug this cord into a properly grounded power outlet. Do not use an inappropriate adapter to plug the instrument into an ungrounded outlet or electric shock may occur. More information on the wiring of the power cord can be found in the Vista Specifications section of this chapter.

Note. Since the Vista uses a USB cable to communicate with the computer, select the highest number COM Port No. offered.

Install EasyMatch QC Software

Complete the following steps:

1. Log into the system using an account that has 'Administrator' privileges for the PC — network or local.
2. Insert the installation CD into the CD-ROM drive. If the system is setup to automatically run CD programs, the menu will appear and you may skip to Step 5. Otherwise, continue with Step 3.
3. Select the Easy Match QC Icon or from Windows, go to ***START > RUN >EZMQC_MENU*** and ***OPEN***. The following screen will be shown.

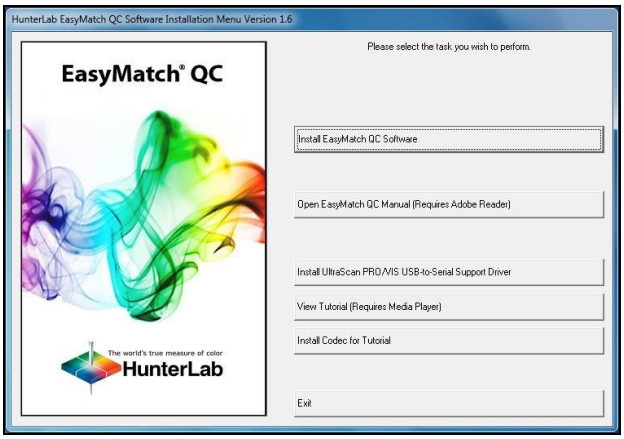

Figure 2. EasyMatch QC Installation

4. Select ***INSTALL EASYMATCH QC SOFTWARE*** and follow the screen prompts.
5. Select ***SOFTKEY LICENSE*** as the type of key to use with the software.

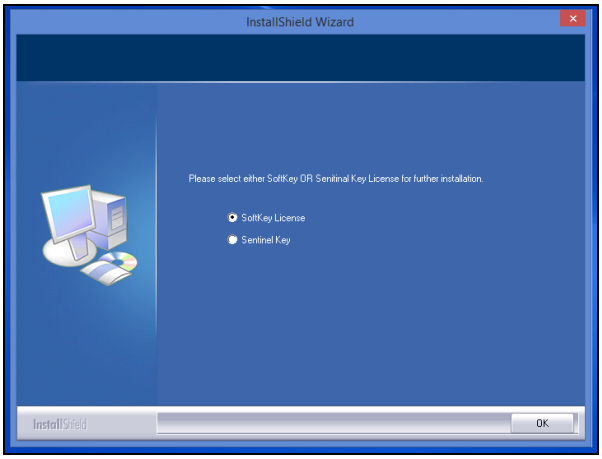

Figure 3. Software Key License

6. When the EasyMatch QC installation is finished, select the ***OPTION BUTTON*** next to **YES, I WANT TO RESTART MY COMPUTER NOW** and then ***FINISH*** to restart the computer and log back in.

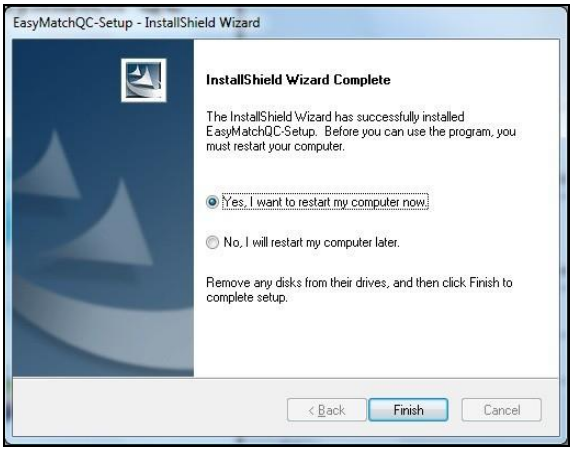

Figure 4. Completed Install

7. The CD can now be removed.

Activate the SoftKey License

1. From the Desktop, select the EasyMatch QC Icon or from the Windows Start menu, choose the following to open the software:

   START > PROGRAMS > HUNTERLAB > EASYMATCH QC

2. A warning message to activate the license will be displayed as shown in Figure 5.

Note: EasyMatch QC functions are unavailable before key activation.

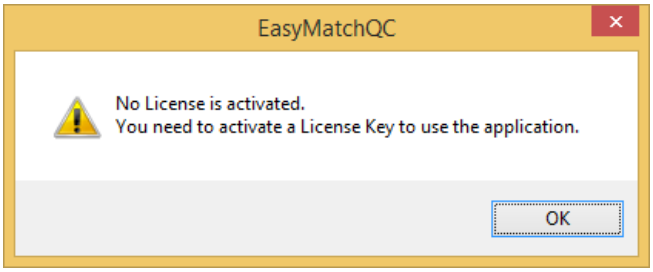

Figure 5. No License Warning

3. The SoftKey License is uniquely associated with the sensor serial number and is provided on a thumb drive supplied with EasyMatch QC or via email from HunterLab.
4. Go to ***HELP> LICENSE REGISTRATION > ACTIVATION***.
5. Select ***ACTIVATE LICENSE***.

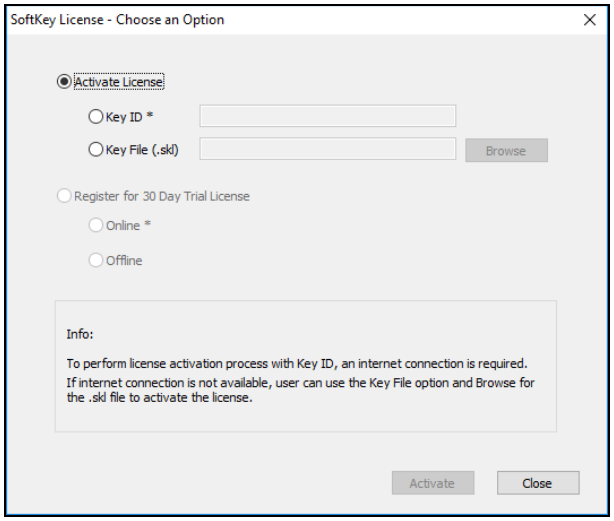

Figure 6. Activate License

i. Option #1: Key ID.

This method is for copying the ID from an email or writing down the 32-digit code. This requires an internet connection.

a. From the ***CHOOSE AN OPTION*** page (Figure 5), select **KEY ID**.

b. Paste-in or type-in the License Key ID and click ***ACTIVATE***.

c. An acknowledgement will be displayed showing the activation status.

ii. Option #2: Key File (.skl)

This method is for using the SoftKey License (.skl file) on the thumb drive.

a. Place the thumb drive with the SoftKey License in the USB port.

b. From the ***CHOOSE AN OPTION*** page (Figure 5), select **KEY FILE** (.skl).

c. Browse the USB to find the SoftKey License (.skl) file, then click ***ACTIVATE***.

d. An acknowledgement will be displayed showing the activation status.

iii. Option #3: Sentinel Key

a. If the user has a HunterLab USB hardware key, then it can be used with a new sensor on the same computer. Return to Install the Software, Step 5 (Figure 3) and select the Sentinel Key to continue.

iv. Option #4: 30-day trial

a. Fill out the registration form provided for the 30-day trial. Connect to the internet. HunterLab will approve the trial and email the SoftKey license back. Follow the directions for Option #1 or #2 to complete.

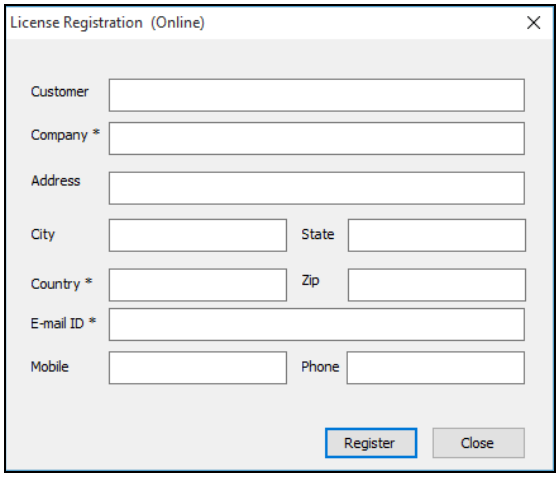

Figure 7. Request 30-day Trial

Connecting Vista to EasyMatch QC and a Computer

EasyMatch QC and EasyMatch QC-ER Version 4.88 and above can connect with Vista. Vista with serial number less than VTS00135 probably need to have some hardware added and the software updated (Vista Essentials 1.00.14 and above). WiFi option is only available for VTS00388 and above.

There are three methods to connect the Vista to EasyMatch QC. . Please select the right method and following the corresponding instruction to connect.

1. Through a Network
2. Direct Connection using an Ethernet Cable
3. Through a Wireless Access Point

Note that instruments built before VTS00135 may need additional hardware or Essentials update (1.00.14 and above).

Method 1: Connect Vista to a Network through an Ethernet port.

1. Plug 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 8. Ethernet Cable

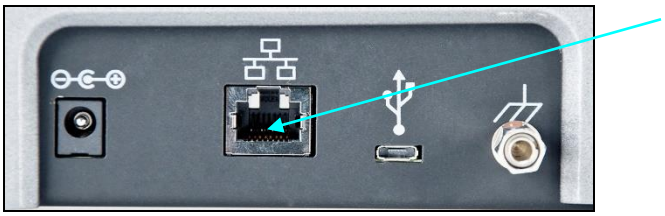

Figure 9. Ethernet Port

2. Connect Vista to network, go to ***JOBS > PREFERENCES > CONFIG NETWORK SETTINGS***. Select ***CONFIGURE ETHERNET SETTINGS***. Check **USE DHCP FOR ETHERNET CONFIG** and click ***APPLY***. If you used the other network setting before, please restart Vista to apply the new network setting.

3. Open EasyMatch QC in the computer.

4. In ***SENSOR> ADD SENSOR > VISTA***. Select ***ETHERNET*** and check the box **DISCOVER AND SELECT A SENSOR IN THE NETWORK** and then click **SEARCH** to automatically search. There will be a drop-down list of all available Vista sensors. If the sensor in the list including IP address as well as sensor name, then it is connectable. If the sensor in the list with "??????" instead of sensor name, it means that EasyMatch QC can find the VISTA, while VISTA is not free to connect to EasyMatch QC. If you meet this problem, you can restart VISTA and click search again. Also, you can go to Vista Essentials, ***WORKSPACE > DIAGNOSTICS > ADVANCED*** and click ***RESTART COMM*** to have Vista communication available, and then go back to EasyMatch QC and click search again. **RESTART COMM** is available in Vista Essentials Rev 21 and higher. Please download our latest Vista Essentials from our support website.

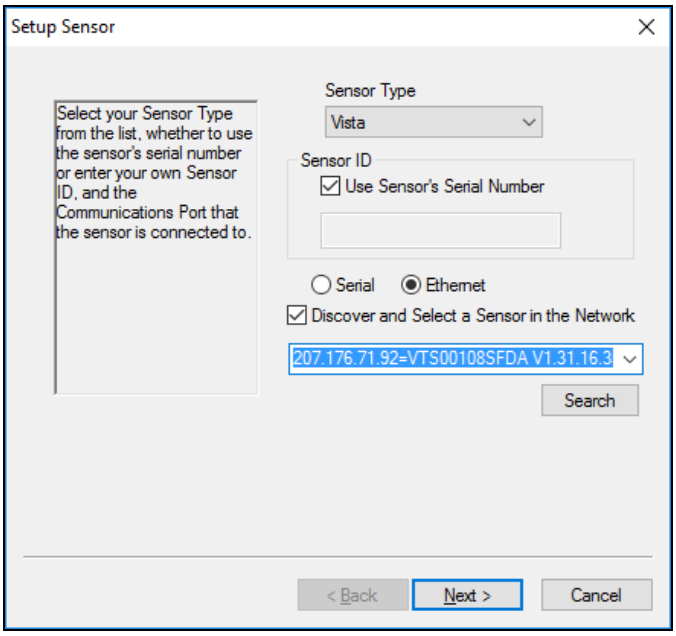

Figure 10. Sensor Setup

5. Select ***NEXT*** to standardize.

Method 2: Directly Connect Vista and PC with an Ethernet Cable

1. Connect the Ethernet cable to the Vista and the computer. You can apply Ethernet adapter here to connect the Ethernet cable to one USB port of the computer.

2. Open Command Prompt in the computer.

3. Type in ***IPCONFIG***. Under the Ethernet adapter information, review the autoconfiguration **IPV4 ADDRESS** and **SUBNET MASK**.

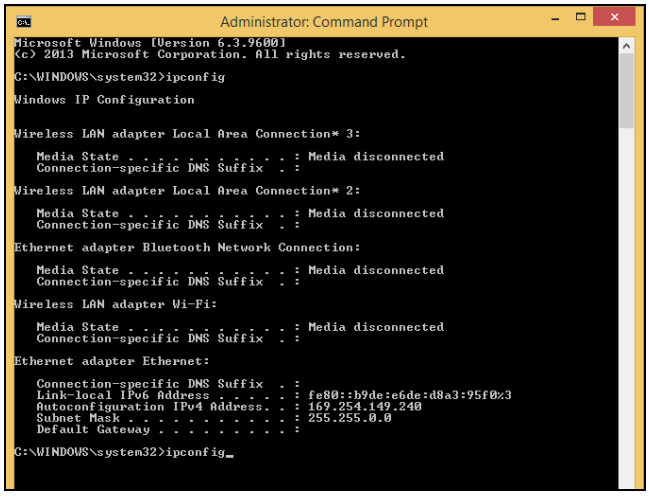

Figure 11. Configuration for EasyMatch QC

4. Open Vista Essentials, go to **JOBS > *PREFERENCES > CONFIGURE NETWORK SETTINGS***. Uncheck **USE DHCP FOR ETHERNET CONFIG**. Type in the **IP ADDRESS** and ***SUBNET MASK*** manually, then press ***APPLY***. The IP address here should be exact same as the

AUTOCONFIGURATION IPV4 ADDRESS in the PC, except changing the last two digits. Press ***APPLY*** on the Ethernet Configuration and then ***APPLY*** on the Preferences Page to complete.

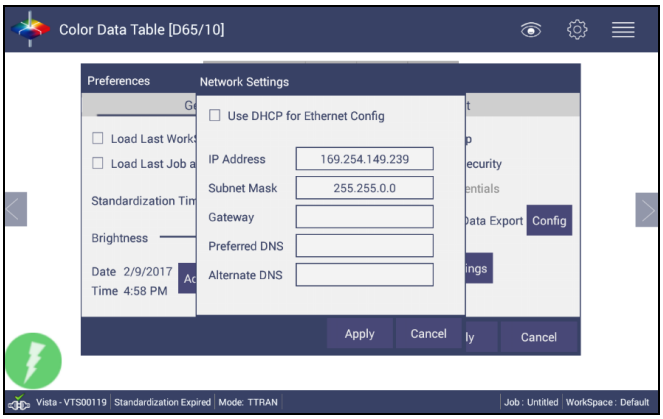

Figure 12. Configure IP Address & Subnet in Essentials

5. Restart Vista to apply the network settings
6. Open EasyMatch QC and from the menu, click ***SENSOR > ADD SENSOR*** and select ***VISTA***. Select ***ETHERNET*** and uncheck the box to **DISCOVER AND SELECT A SENSOR IN THE NETWORK**. Then type in the IP address which has been set up in Vista Essentials.

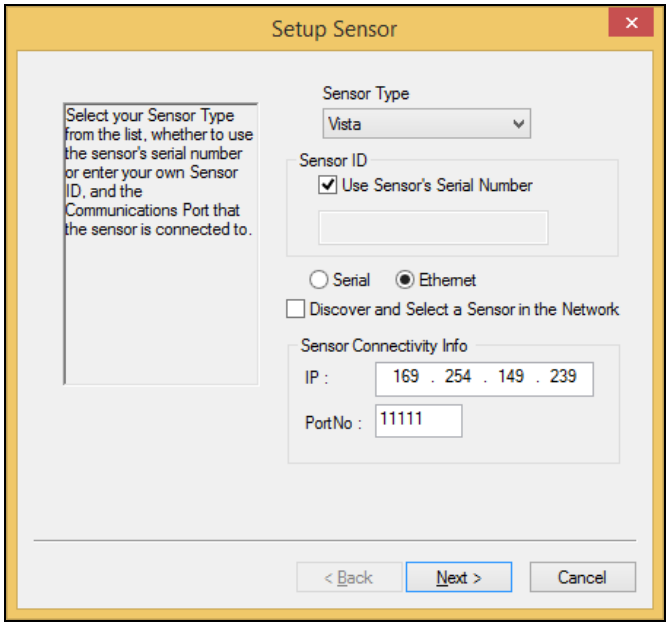

Figure 13. Setup Sensor in EasyMatch QC

You are now ready to use EasyMatch QC with the Vista.

Method 3: Connect Vista to a Computer through a Wireless Access Point

Note: This option only works for VTS00388 and above. All Vista below this serial number does not have WiFi ability built-in. Also, WiFi network option is only available for Vista Essentials Rev 1.05 and above.

1. To connect Vista to a network, go to ***JOBS > PREFERENCES*** and select ***CONFIG NETWORK SETTINGS.*** Select ***CONFIGURE WIFI SETTINGS*** and the WiFi configuration dialog will be prompted.

2. Please search and connect to the available WiFi and write down the IP address showing in this dialog. After the WiFi configuration, please click the floating **BACK BUTTON** to go back to Essentials app.

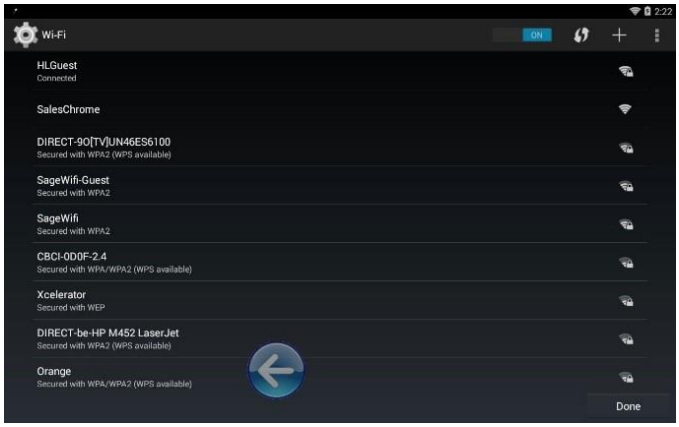

Figure 14. Select WiFi Network

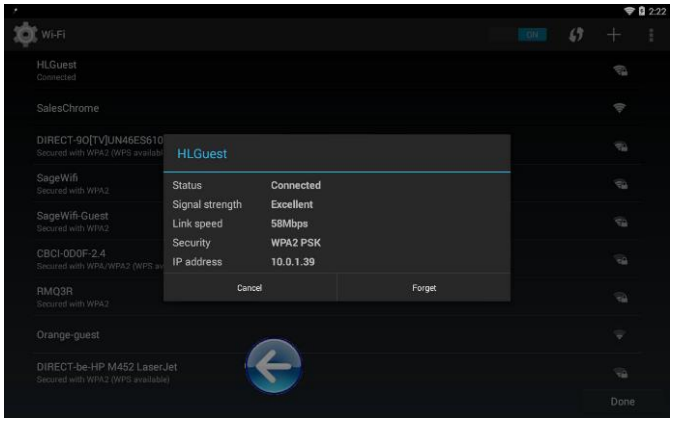

Figure 15. Verify Connection to WiFi

3. Open EasyMatch QC on the computer. From the menu, select ***SENSOR > ADD SENSOR*** and select ***VISTA***. Select ***ETHERNET*** and check the box ***DISCOVER AND SELECT A SENSOR IN THE NETWORK*** and then click ***SEARCH***. There will be a drop-down list of all available Vista sensors. If the sensor in the list includes an IP address as well as the sensor name, then it is connectable. If the software returns with '??????' instead of the sensor name, it means that the Vista is not free to connect. If you meet this problem, restart the Vista and click ***SEARCH*** again. Also, you can go to Vista Essentials, ***WORKSPACE > DIAGNOSTICS > ADVANCED*** and click ***RESTART COMM*** to have Vista communication available. Go back to EasyMatch QC and click **SEARCH** again. **RESTART COMM** is available in Vista Essentials Rev 21 and higher. Please download our latest Version of Vista Essentials in our support website.

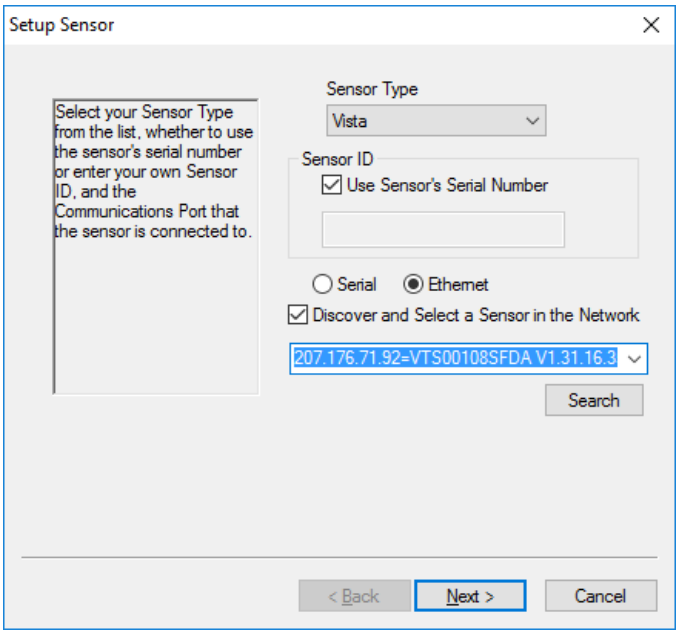

Figure 16. Discover Vista

4. Click ***NEXT*** to standardize.

Add the Sensor

1. Upon initial startup, the following message will be displayed: ***SENSOR NOT YET INSTALLED***. ***PLEASE INSTALL A SENSOR TO TAKE MEASUREMENTS***. This message will remain until you proceed to the Install/ Configure command in the Sensor menu and install a new sensor.
2. The Sensor Manager appears first:

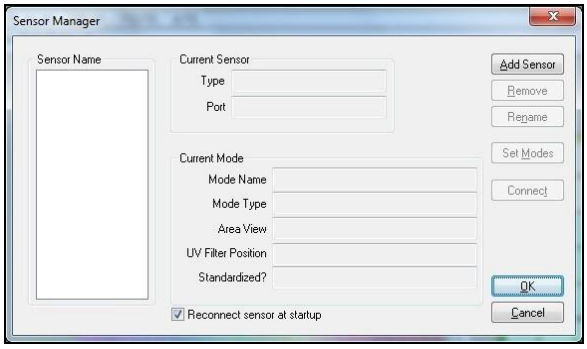

Figure 17. Sensor Manager

3. Select ***ADD SENSOR*** to install a new sensor. The Setup Sensor screen allows selection of the instrument model and the communications port. Select ***NEXT*** when ready.

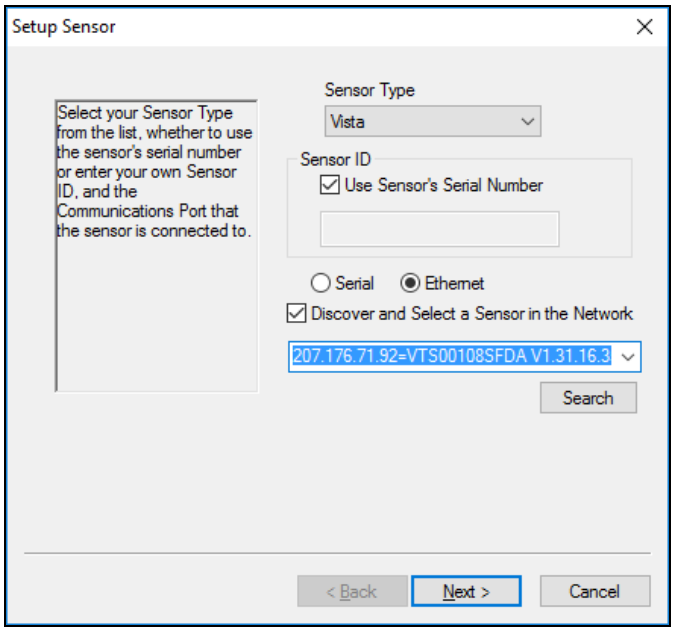

Figure 18. Setup Sensor

4. Next, configure a ***STANDARDIZATION MODE*** for the sensor. The Vista will support TTRAN and RTRAN.

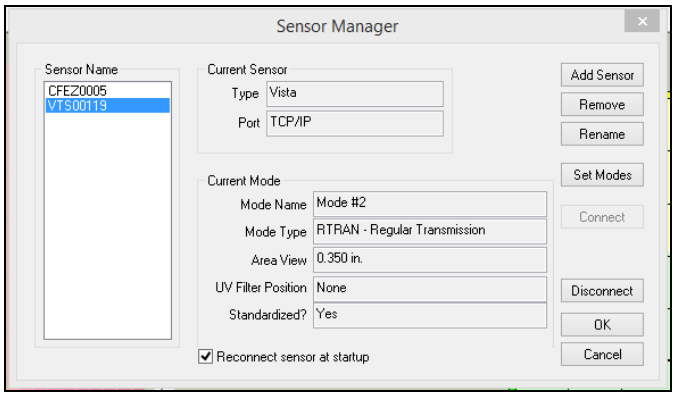

Figure 19. Setup Mode

5. Select the option next to ***STANDARDIZE NOW*** to proceed immediately to standardization upon completion of sensor configuration. Select ***NEXT*** to complete the installation.

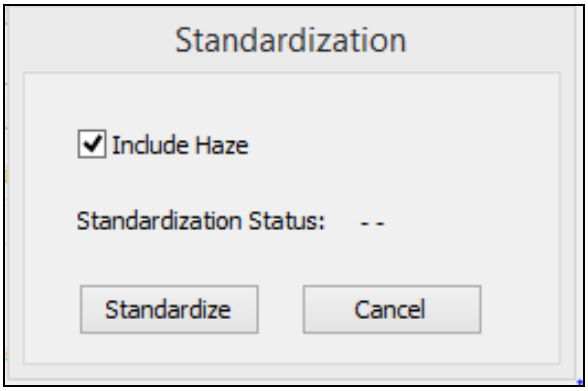

Figure 20. Standardization Menu

Vista Functions

Sensor > Standardization

The Vista must be standardized on a regular basis to keep it operating properly. Standardization sets the top and bottom of the photometric scale. During standardization, the bottom of the scale is set first but is automatically read on the Vista. The top-of-scale is set using a blank cell or empty transmittance compartment.

Two transmittance modes of measurement available with the Vista:

TTRAN: Total Transmittance – sample against the sphere opening

RTRAN: Regular Transmittance – sample close to the lens

The instrument can be standardized at any time by selecting ***SENSOR MENU >*** or by clicking the ***STANDARDIZE*** button on the default toolbar. It is recommended that the instrument perform standardization at least once every eight hours.

When the instrument is to be used for transmission measurements of liquids, a clear liquid (distilled water for water-based samples, toluene or benzene for resins, or mineral oil for oils) in a cell of the desired size should be used to set the top of the scale.

Place the cell in the transmission compartment against the ***sphere*** for measuring total transmittance. Place it as close to the ***lens*** as possible when measuring regular transmittance.

Note: Closing the transmission compartment door while making transmittance measurements is a best practice for this instrument. However, it is not necessary to eliminate ambient room light with the Vista.

Haze Measurements

A transmission haze measurement is a ratio of the diffuse light to the total light transmitted by a specimen. Useful measurements of haze can be made on the HunterLab Vista instrument listed above, although the results do not conform exactly to ASTM method D1003 because of differences in instrument geometry. Haze is calculated as follows:

$$\text{Haze} = \frac{Y_{\text{Diffuse Transmission}}}{Y_{\text{Total Transmission}}} \text{ x } 100$$

Haze measurements can be made only in a transmission mode on a benchtop sphere instrument (UltraScan PRO, UltraScan VIS or Vista).

In order to measure and display haze values, follow the steps outlined below:

1. Select ***OPTIONS > READ METHOD***.
2. Select ***HAZE*** from the dialog box that appears. The screen changes to allow additional options.

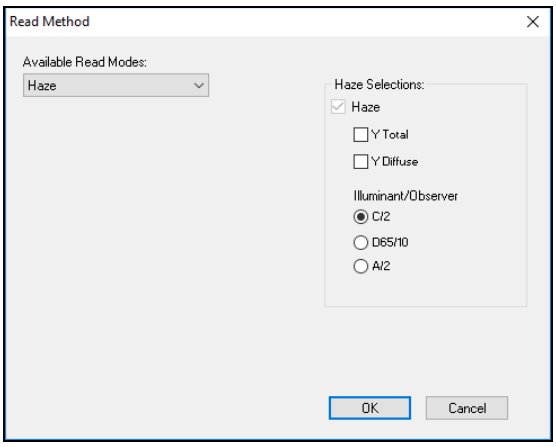

Figure 21. Read method: Haze

3. Haze is automatically selected for display in your Color Data Table. Check the boxes next to Y Total and/or Y Diffuse to also show these components of the haze calculation. Click the radio button next to the illuminant/observer combination you wish to use. Then click ***OK***.
4. Standardize the instrument in TTRAN mode. Go to ***SENSOR > SET MODES*** and select ***TTRAN***. Next, select ***HAZE*** using the check box. Then press ***STANDARDIZE*** to initiate.

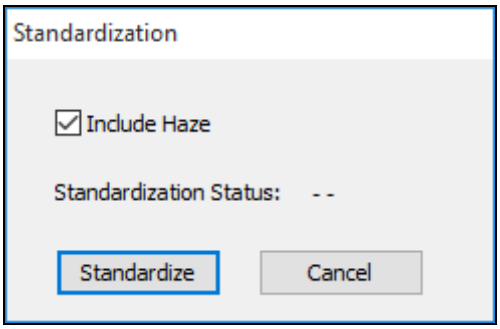

Figure 22. Haze Standardization Check Box

5. Read the standard or sample by choosing ***MEASUREMENTS > READ STANDARD*** OR ***MEASUREMENTS > READ SAMPLE***, clicking the ***READ STANDARD*** or ***READ SAMPLE*** button on the toolbar, or pressing ***F2*** or ***F3***. The following prompt appears.
6. Place your sample against the transmission port next to the sphere. Click ***READ***.
7. The instrument reads. You may be prompted to enter an ID for the measurement as usual. After you do so, Haze and the other parameters you chose to display will be shown in your Color Data Table.

ID	L*	a*	b*	Haze % C/2	Y Total C/2	Y Diffuse C/2
Haze sample	94.96	0.00	2.88	10.78	87.73	9.46

Figure 23. Haze Readings Reported

Vista Maintenance and Testing

The Vista is engineered to be virtually maintenance free. This section outlines the few parts of the sensor that are to be maintained for the instrument to function properly.

Cleaning the Vista

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

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.

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 can be used to gently wipe the surface. After wiping allow 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. After wiping allow the filter to dry for at least one hour.

Power Required

Voltage:	100-240 VAC,1.5A, 47/63 Hz
Single Phase:	180 VA maximum
Fuse:	1.4A, SB
Installation Category (Over Voltage):	II

Safety

- Do not view the instrument LED's directly as it may be damaging to the eyes.
- Do not submerge the instrument in water.
- Do not take the instrument apart as there are 'no user serviceable parts' in the instrument.
- Do not disassemble the instrument and attempt to clean the optical components. Do not open the instrument or remove any covers except using the instructions given in this User's Manual or under the direction of HunterLab Technical Support.

Diagnostics using EasyMatch QC

Performance Diagnostics for Repeatability and Didymium Filter Test for Wavelength Accuracy are included with EasyMatch QC Version 4.93 and above. To begin, select Sensor > Diagnostics and select Repeatability or Didymium Filter Test.

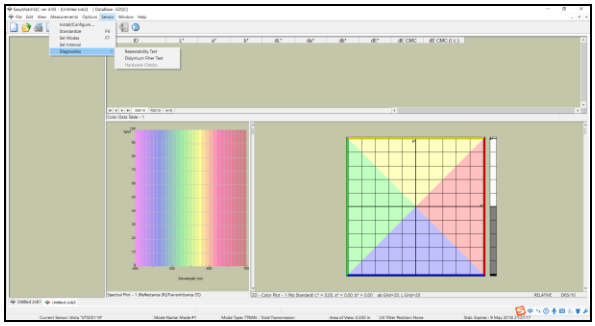

Figure 24. Diagnostics Menu

Repeatability

Each of the 30 measurements must pass the tolerance of dE* < 0.025. If any of the measurements fail, then the test will fail.

To begin, clear the transmittance compartment and press Start when ready to initiate standardization.

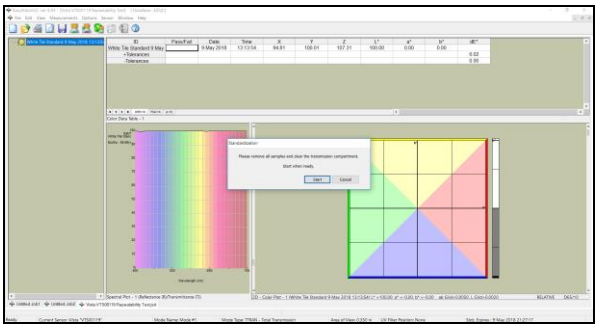

Figure 25. Repeatability Start

When standardization is complete, press ***FINISH*** to begin Repeatability.

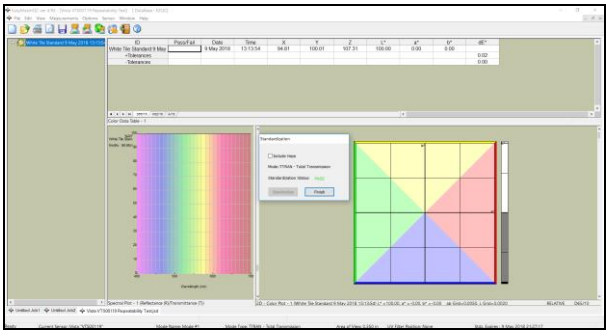

Figure 26. Press Finish to Initiate Repeatability

Repeatability results on 30 readings is shown below.

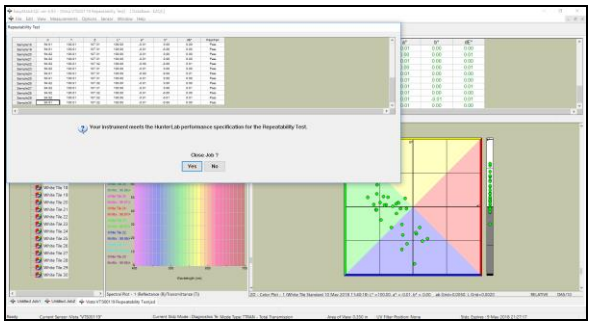

Figure 27. Repeatability Results

Didymium Filter Test

The Didymium filter test operates in a similar manner to the Repeatability Test. Remove all samples from the transmittance compartment and begin standardization in RTRAN.

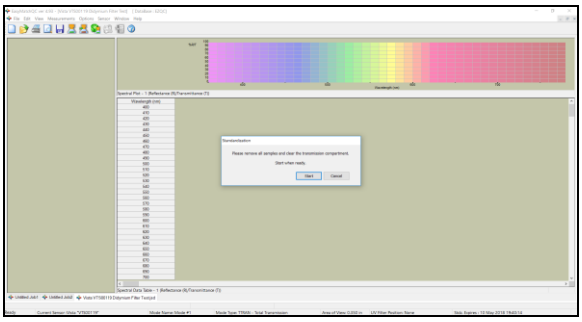

Figure 28. Standardization for Didymium Filter Test

Insert the Didymium Filter at the lens port and press ***OK*** to start the test.

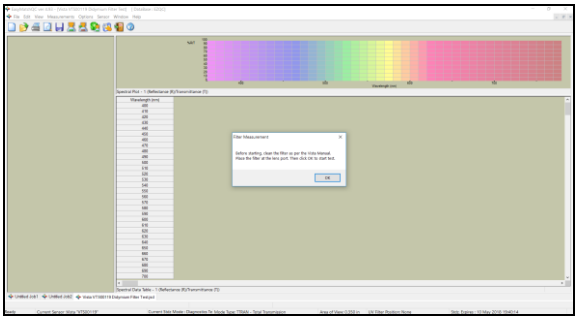

Figure 29. Insert Didymium Filter at Lens Port

Enter the values for the 430nm and 570nm reading from the tile data sheet.

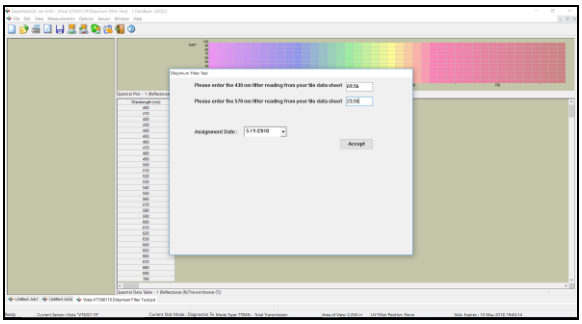

Figure 30. Enter Tile Data

View the results.

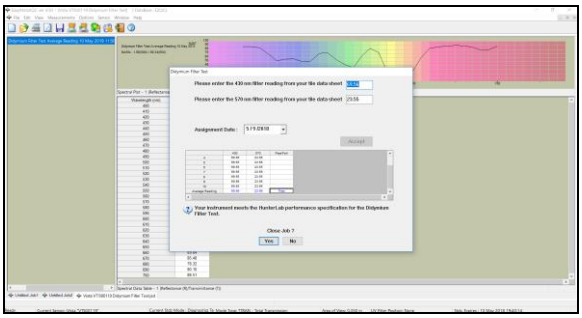

Figure 31. Didymium Results Reported

Diagnostics on the Vista

Performance Diagnostics are included with the Essentials software version 1.01.0021 and higher. Go to ***WORKSPACE > DIAGNOSTICS*** and refer to the Vista Essentials manual for additional information. For updated Essentials software, refer to support.hunterlab.com.

Figure 32. Performance Diagnostics

Vista Specifications

The specifications and characteristics of your instrument are given in this section. For best performance, your instrument should be placed where there is ample work space with medium or subdued illumination and no drafts.

The instrument should be connected to a stable, instrument-grade power line. If other equipment is connected to the same power line, a transient power surge may be produced when the other equipment is turned on. If this happens, restandardize the instrument before making measurements. HunterLab recommends using a line conditioner with a minimum 600 VA rating and a battery back-up system.

Physical/Electrical

Weight	6.35kg (14lbs)
Dimensions (Height x width x length)	177.8 mm x 485.8 mm x 228.6 mm (7 in x 19.13 in x 9.0 in)
Sample Compartment Height with Door closed	82.55 mm (3.25 in)
Communications Interface	1- USB Micro OTG to printer 2- Wireless mouse and keyboard 3- Ethernet RJ45 for Save, Print and Email capability
Standards Conformance	CIE 15:2004, ISO 7724/1, ASTM E1164, DIN 5033, Teil 7 and JIS Z 8722 Condition E, G
Safety Compliance	CE, IEC 61326-1
System Power	100-240 VAC/1.5A, 47-63 Hz

Environmental Requirements

Operating Temperature	10°C - 40°C (50°F - 104°F)
Operating Humidity	10% to 90% relative, non-condensing
Storage Temperature	-21°C - 66°C (-5°F - 150°F)

Conditions of Illumination and Viewing

Light Source	Full spectrum LED array
Dual Beam Spectrophotometer	256 element diode array and high resolution, concave holographic grating
Geometry	Tt/0° or Td/0° per ASTM
Sphere	76 mm (3 in) 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
Transmittance Compartment (HxWxD)	108.0 mm x 101. 6mm x 187.3 mm (4.25 in x 4.0 in x 7.38 in); Cover can be removed for large samples

Instrument Performance

Spectral Data	Range: 400-700 nm Reporting Interval (nm): 10 nm
Spectral Resolution	<0.3 nm
Spectral Repeatability	Standard deviation within 0.1 %
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
Colorimetric Repeatability	ΔE* ≤ 0.025 on air w/30 readings

Note: Every attempt at accuracy is made, but specifications are subject to change without notice.

Note: 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.

Regulatory Notice

A copy of the Declaration of Conformity for the Vista follows.

HunterLab
ISO 9001 Certified

Declaration of Conformity

EU / EMC Directive:	**2014/30/EU**
Standard to which Conformity is Declared:	**IEC 61326-1: 2012 / EN: 2013**
Manufacturer:	**Hunter Associates Laboratory, Inc.** **11491 Sunset Hills Rd, Reston, VA, USA**
European Representative: Representative's Address:	**Christian Jansen** **Griesbraeustrasse 11, 82418 Murnau, 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*

Date: *May 25, 2016*

Signature: Tim Barrett

Full Name: *Tim Barrett*

Position: *Systems Engineer*

Vista Options and Sample Holders

Self-Centering Sample Holder (D02-1017-193)

The self-centering sample holder takes the guess work out of cell placement for total and regular transmittance, ensuring precision and accuracy every time. Compatible with cells up to 50mm wide.

Universal Adapter Base Plate (D02-1017-223)

This universal adapter base plate with (2) accessory mounting bolts is designed to accommodate third-party sample holders. Measuring 5” x 3.75” (127 mm x 95.25 mm) this base plate has 20 individual 0.25” (6.35 mm) threaded holes that are spaced in a 1” x 1” (25.4 mm x 25.4 mm) grid pattern.

Multi-Function Sample Holder (D02-1017-192)

This multi-function sample holder is designed to measure color, and transmittance haze compliant with ASTM D1003 Procedure B. The reversible design allows both total and regular transmittance measurements by either placing and holding the sample directly against the sphere or the receptor port, ensuring precision, accuracy and consistency of sample placement for films, plastics and liquids. This Sample Holder is also the base unit for other optional Cell Holders and Accessories.

Cell holder for 20mm Flow through Cell (D02-1017-715)

This cell holder magnetically attaches to Total Transmission port of Vista. Accepts 20mm pathlength by 51mm diameter flow through cell. (HunterLab part # C04-1001-959)

Cell holder for 10mm Flow through Cell (D02-1018-678)

This cell holder magnetically attaches to Total Transmission port of Vista. Accepts 10mm pathlength by 51mm diameter flow through cell. (HunterLab part # C04-1001-958)

Thin Film Holder (L02-1017-749)

Thin film holder is designed to allow easy preparation and presentation of thin transparent and translucent films for measurement of transmitted color and Haze.

Macro Cell Holder for Haze Measurement (D02-1017-344)

This cell holder is precisely designed to hold glass and plastic macro analytical cells with outside path length dimensions not exceeding 12.32 (path length) x 12.50mm (0.484 x 0.492 inches) for repeatable total transmittance and haze measurements. Requires D02-1017-192 Multi-Function Sample Holder. A starter kit of three PMMA plastic cells is included with this cell holder.

Semi-Micro Cell Holder for Haze Measurement (D02-1017-390)

This cell holder positions semi-micro analytical plastic cells with outside path length dimensions not exceeding 12.42 (path length) x 12.50mm (0.489 x 0.492 in.) for repeatable total transmittance and haze measurements. Requires D02-1017-192 Multi-Function Sample Holder. A starter kit of three PMMA plastic cells is included with this cell holder.

Ultra-Micro Cell Holder (Plastic Cells) (D02-1017-391)

This cell holder positions ultra-micro analytical plastic cells with outside path length dimensions not exceeding 12.50 (path length) x 12.50mm (0.492 x 0.492 in.) for repeatable total transmittance measurements. Requires D02-1017-192 Multifunction Sample Holder. A starter kit of three PMMA plastic cells is included with this cell holder.

Semi-Micro Cell Holder (Glass Cells) (D02-1017-429)

This cell holder positions semi-micro analytical glass cells with outside path length dimension not exceeding 12.47 (path length) x 12.50mm (0.492 x 0.492 inches) for repeatable total transmittance measurements. Requires D02-1017-192 Multifunction Sample Holder. Suggested cell suppliers include Hellma 104-20-20 and Starna 1-SOG-10.

Haze Standard Holder (D02-1017-544)

Provides a holder for positive placement of four inch round haze standards.

Round Vial & Preform Holder (L02-1017-471)

This preform holder is an accessory that requires the Multi-Function Sample Holder (D02-1017-192), securely positioning the preform either vertically or horizontally for accurate transmittance color measurement. It is not intended for Haze measurements of preforms.

Precision Cell Holder Baseplate (D02-1017-224)

The Precision Cell Holder base plate is required for use with the Precision Cell holders for such measurements as ASTM D1500, Saybolt, Gardner, APHA, YI and Transmittance Color. Note: This accessory is not compliant with the measurement of Haze ASTM D1003.

Precision Cell Holder for Plastic Macro Cells (D02-1016-913)

This cell holder is designed to precisely position 10mm macro plastic cells with max outside path length dimensions not exceeding 12.42 x 12.50mm (0.489 x 0.492 in.) for repeatable regular transmission measurements. Used in combination with the Cell Holder Base Assembly (Vista PN# D02-1017-224), sold separately. A starter kit of three PMMA plastic cells is included with this cell holder.

Precision Cell Holder for Macro Cells (D02-1017-048)

This cell holder is designed to precisely position 10mm macro glass and plastic cells with max outside path length dimensions not exceeding 12.50 x 12.50mm (0.492 x 0.492 in) for repeatable regular transmission measurements. Used in combination with the Cell Holder Base Assembly (Vista PN# D02-1017-224), sold separately. Hellma part number 100-10-20 and Starna part number 1-g-10 cells have been validated with this cell holder.

Precision Cell Holder - Semi-Micro Cells (D02-1017-050)

This cell holder is designed to precisely position 10mm semi-micro plastic and glass cells with max outside path length dimensions not exceeding 12.42 x 12.50mm (0.489 x 0.492 in.) for repeatable regular transmission measurements. Used in combination with the Cell Holder Base Assembly (Vista - D02-1017-224), sold separately.

Precision Cell Holder - Ultra-Micro Plastic Cell (D02-1017-051

This cell holder is designed to precisely position10mm ultra-micro plastic and glass cells with max outside path length dimensions not exceeding 12.50 x 12.50mm (0.492 x 0.492 in.) for repeatable regular transmission measurements. Used in combination with the Cell Holder Base Assembly (Vista - D02-1017-224), sold separately. Brand cells, part number 759200D have been validated with this cell holder.

Glass Cell Holder, 10 mm to 50 mm (D02-1017-122)

This cell holder is designed to precisely position 10 to 50mm glass cells for accurate positioning and repeatable transmittance color measurements. Requires Precision Cell Holder Base Assembly (D02-1017-224, sold separately).

Vial Holder, 25mm Nominal Path Length (D02-1017-576)

This cell holder is designed to precisely position a standard vial with a max outside path length of 27.75 mm (1.09”) for repeatable 25mm nominal path length transmission measurements. The regular 24mm vial holder D02 1017 576 can only be used for color, not for Haze. Requires Precision Cell Holder Base Assembly (D02-1017-224, sold separately). Vials are purchased by the customer from third party suppliers.

24mm Vial Holder for Haze (D02-1018-759)

This specially designed holder incorporates an optical design that enables the simultaneous measurements of both color and haze of liquid samples in 24mm round vials. This holder is used in combination with Precision Cell Holder Baseplate (D02-1017-224, sold separately). Vials are purchased by the customer from third purchased by the customer from third party suppliers.

Holder for ISO 2R and 4R Vials (D02-1017-129)

Vial holder for ISO 2R (4 mL) and 4R (6 mL) vials (14mm nominal path length). This precision holder positions a standard vial for measurement. Used in combination with the Precision Cell Holder Base Assembly (D02-1017-224, sold separately). This assembly provides accurate positioning for repeatable transmittance color measurements. The simple design ensures proper distance and alignment of the cell or sample, eliminating inconsistencies from cell to cell and user to user. Compatible with cells up to 50mm wide.

ISO 2R/4R Vial Holder for Haze (D02-1018-077)

Vial holder for ISO 2R (4 mL) and 4R (6 mL) vials (14mm nominal path length). The regular round vial holder cannot be used for Haze/NTU measurements. This special 2R/4R vial holder for Haze/NTU has a lens inserted so that user can do color and haze measurement at the same time for samples in round vials. This holder is used in combination with Multifunction Sample Holder (D02-1017-192, sold separately). Vials are purchased by the customer from third party suppliers.

Didymium Diagnostic Filter for Vista (D02-1017-167)

Replacement diagnostic filter used for wavelength verification of the instrument. Didymium filter comes in a holder that magnetically mounts to the receptor side of the sample compartment. Instrument must be returned to Service Center if Factory Read Values are required. (Included with instrument)

Haze Standard Holder (D02-1017-544)

Provides a holder for positive placement of four inch round haze standards.

Haze Check Standard for Vista (D02-1019-161)

This diagnostic standard is used for verification of haze measurement. The haze standard comes in a holder that magnetically mounts to the sphere side of the sample compartment.

ND 50% T Diagnostic Filter (D02-1017-419)

This diagnostic filter used for performance verification of the instrument. (50% transmission). The neutral density filter comes in a holder that magnetically mounts to the receptor side of the sample compartment. (Must be purchased at time of Instrument order to include Factory Read values.)

ND 90% T Diagnostic Filter (D02-1017-480)

Neutral Density filter, 90% Transmission. The neutral density filter comes in a holder that magnetically mounts to the receptor side of the sample compartment. (Must be purchased at time of Instrument order to include Factory Read values.)

HunterLab 2 GB USB 2.0 Flash Drive (A10-1013-423)

2 GB USB 2.0 flash drive formatted for customer use with customized code for Setup backup and CSV Datalog export.

USB Barcode Scanner (A13-1018-566)

Barcode Scanner scans product IDs directly into the instrument

USB Cable (Standard A receptacle to Micro A) (A21-1016-453)

USB Cable, (Standard A receptacle to Micro B plug,100mm long) to allow connections to USB devices such as A13-1014-254 bar code scanner, A13-1014-294 keyboard, and A13-1014-259 USB Printer

Vista Grounding Wire Assembly (D02-1017-515)

This optional accessory provides a ground wire with banana plug connector and spade lug terminal to allow grounding of Vista instrument to facility electrical ground. This accessory is useful for users who need additional instrument grounding such as: ESD protection, high static environments, and inter-connection with other systems.

USB Wireless Keyboard and Mouse (L02-1017-434)

Provides a wireless Keyboard and mouse with USB Dongle for easy entry of measurement identifiers. Dongle can plug into the front or rear USB ports. (Rear port requires a USB A to USB micro adapter.)

Cover Glass Kit (L02-1017-505)

The Cover Glass kit provides 10 user-replaceable 1”x1” glass sphere port covers and 2 re-usable gaskets. The cover glass assembly helps to prevent liquids and volatiles from entering the instrument sphere thus reducing service and repair needs. Installation instructions are included with the kit.
*Note: Though minimal, the use of this accessory may affect absolute haze values.

When You Need Assistance

If you need for 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. A subsequent form gathers information on your request for response from our Customer Experience Teams around the globe.

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