

LabScan® XE

Supplemental Manual for EasyMatch® QC



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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 LabScan 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.

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LabScan XE Features

The LabScan XE is a full-scanning spectrophotometer with a wavelength range from 400 to 700 nanometers (nm). It is designed for use with the sample port facing up or forward. It can also be used port-down with an optional stand.

The sample is illuminated by a xenon flash lamp and reflected light is collected by a 15-station fiber optic ring. For maximum stability, the instrument is automatically standardized to an internal reference tile whenever measurements are made. The picture below shows the instrument in the port-up configuration.



Figure 1. Photo of LabScan XE

Note: Use of this equipment in a manner not specified by the manufacturer may impair the protection afforded by the equipment

Indicator Lights

The LabScan XE's indicator light feature lets you know what mode of standardization is currently in use. There is also an "In progress" light next to the indicator lights that flashes when a reading is in progress or a motor is in motion.



Figure 2. Indicator Lights

The lights shown here are (L-R): Power on, Small Area View In-Use, UV completely-excluded, and In-Progress.

Macro Button

The macro button, also known as the Sensor button, activates a sample measurement.

LabScan XE Standard Accessories

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

- [Instrument Standard White tile with calibrated values](#) - placed at the sample port during standardization.
- [Black glass](#) - placed at the sample port during standardization.
- [Diagnostic Check Green tile](#) - used to check instrument performance.
- [White backup tile](#) - used to back samples during measurement or cover the port when the instrument is not in use.
- [Tile data sheet](#) - Gives calibration information for the standard tiles.
- [Fuses](#) - Two fuses are provided as spares.
- [Communications cable](#).
- [Power cord](#).
- [Standards care card](#) - gives instructions on how to clean the standards.
- [Certificate of traceability for the calibrated white tile](#).
- [Diagnostics software CD](#).

Getting Started with LabScan XE

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 4. 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.

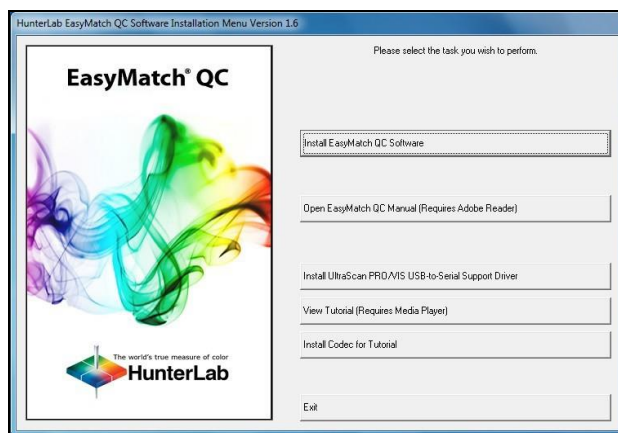


Figure 3. EasyMatch Installation

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.

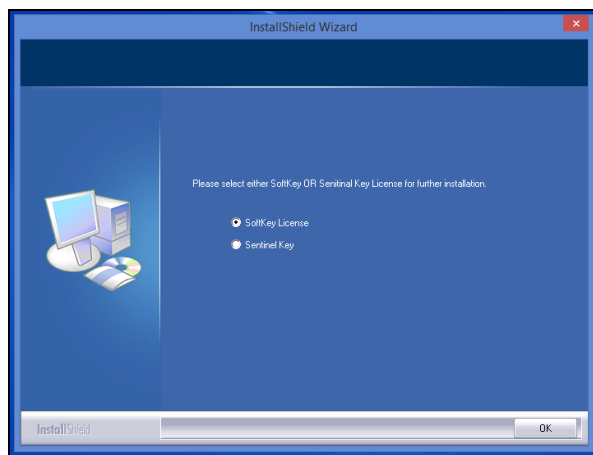


Figure 4. Software Key License

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.

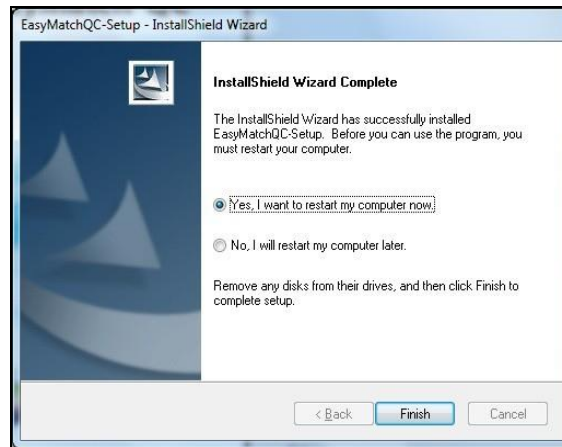


Figure 5. Completed Install

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 6.

Note: EasyMatch QC functions are unavailable before key activation.

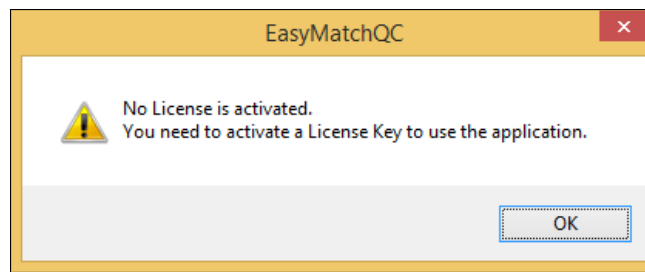


Figure 6. No License Warning

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**.

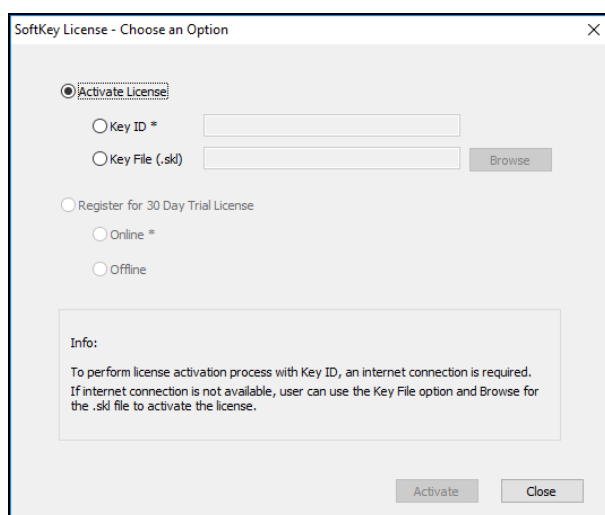


Figure 7. Activate License

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 7), 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.

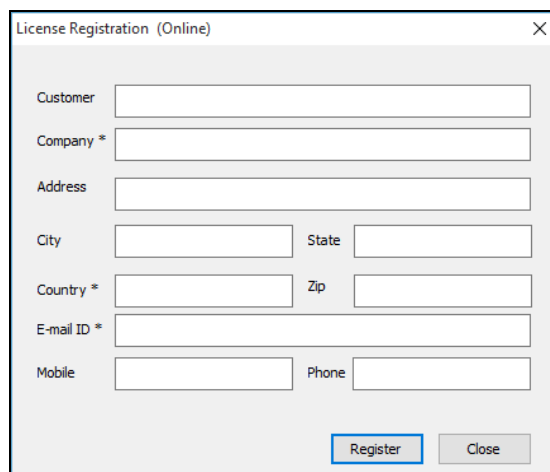
- a. Place the thumb drive with the SoftKey License in the USB port.
- b. From the **CHOOSE AN OPTION** page (Figure 7), select **KEY FILE (.skl)**.
- c. Browse the USB to find the SoftKey License (.skl) file, then click **ACTIVATE**.
- d. An acknowledgement will be displayed showing the activation status.

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 4) 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.



License Registration (Online) dialog box with the following fields:

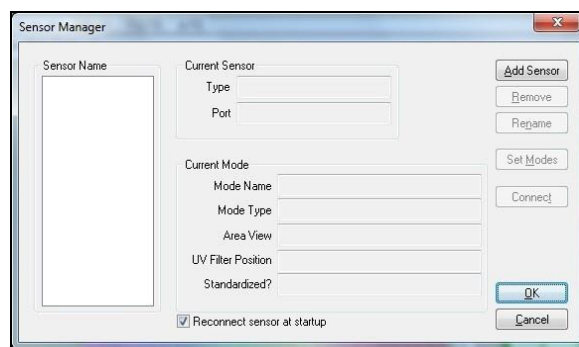
- Customer
- Company *
- Address
- City
- State
- Country *
- Zip
- E-mail ID *
- Mobile
- Phone

Buttons: Register, Close

Figure 8. Request 30-day Trial

Sensor > 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:

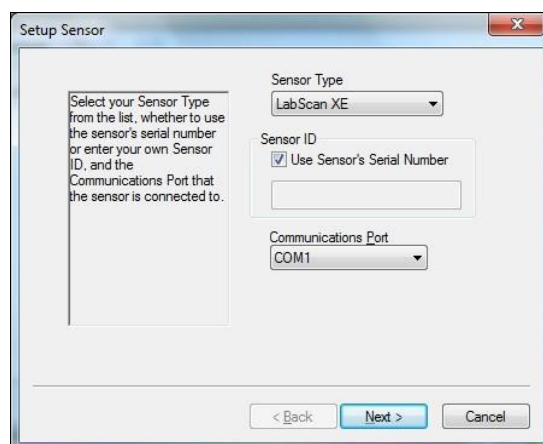


Sensor Manager dialog box with the following fields and buttons:

- Sensor Name (list box)
- Current Sensor Type
- Port
- Current Mode Mode Name
- Mode Type
- Area View
- UV Filter Position
- Standardized?
- ☒ Reconnect sensor at startup
- Buttons: Add Sensor, Remove, Rename, Set Modes, Connect, OK, Cancel

Figure 9. 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.



Setup Sensor dialog box with the following fields and buttons:

- Select your Sensor Type from the list, whether to use the sensor's serial number or enter your own. Sensor ID, and the Communications Port that the sensor is connected to.
- Sensor Type (dropdown menu)
- Sensor ID (checkbox: Use Sensor's Serial Number)
- Communications Port (dropdown menu)
- Buttons: < Back, Next >, Cancel

Figure 10. Setup Sensor

4. Place the desired port plate at the reflectance port and snap it into place.
5. Turn on the LabScan XE by switching the on/off switch on the back of the sensor to the on position. Allow the instrument to warm up for two hours prior to standardizing and making measurements.

LabScan XE Standardization

The LabScan XE must be standardized on a regular basis to keep it operating properly.

Sensor > Standardize

There is only one measurement type available when you standardize the LabScan XE:

- Reflectance and due to the instrument geometry of 0/45, this measurement is:
RSEX: Reflectance - Specular Excluded

With varying hardware configurations such as UV filter in/out and the different areas of view, there are many mode options for standardizing the LabScan XE. The instrument can be standardized at any time by selecting **SENSOR > STANDARDIZE** or by clicking the **STANDARDIZE** button on the default toolbar.

- Place black glass at the port to begin and press **NEXT** to continue.

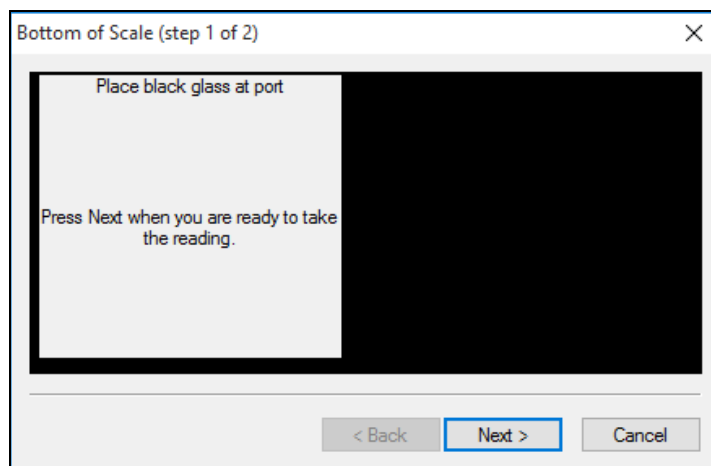


Figure 11. Standardization Steps: Black Glass

- Please the calibrated white tile at the port and press **NEXT** to continue.

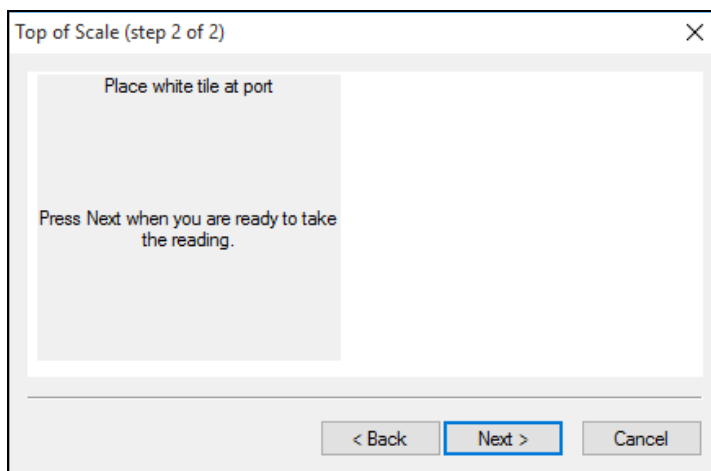


Figure 12. Standardization Steps: White Tile

Sensor > Set Interval

The **SENSOR > SET INTERVAL** command allows you to set the standardization interval for the currently active sensor. When that interval has elapsed, the software will prompt you to standardize before more readings can be made. The interval indicated here applies to EasyMatch QC as a whole, regardless of the job currently in use.

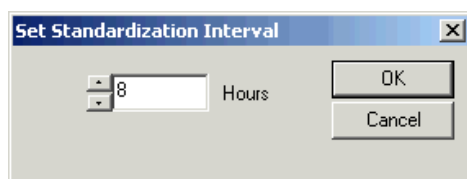


Figure 13. Re-standardization Interval

Note: A re-standardization interval of no longer than 8 hours is recommended.

If your installed sensor is a LabScan XE, you may also set the **SECONDARY STANDARDIZATION INTERVAL**, which is the interval at which the secondary white tile paddle is automatically checked. Zero disables reading of this tile entirely.

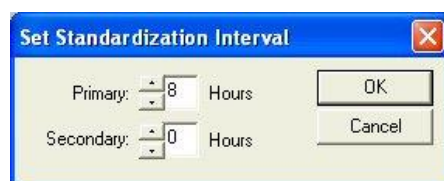


Figure 14. Setting Secondary Standardization Interval

Sensor > Configure Multi Mode

The **CONFIGURE MULTI MODE** command in the **SENSOR** menu appears only when the connected instrument is a ColorQuest XE, LabScan XE, UltraScan XE, UltraScan PRO, or UltraScan VIS. This command is used to set up the process by which the instrument can standardize and read in two separate but similar modes when the standardization and read commands, respectively, are given.

The following screen first appears that allows you to indicate how you would like the multimode readings to be performed.

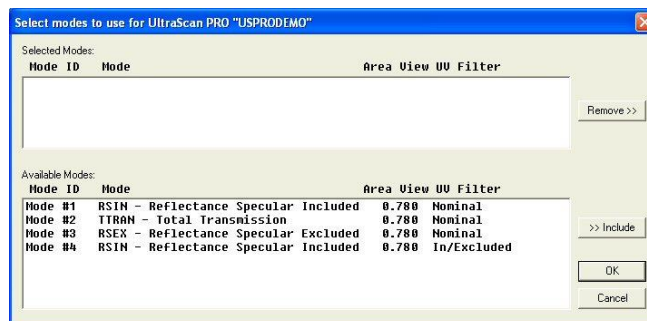


Figure 15. Configure Multi-Mode

When this screen first opens, all of the standardization modes you have configured for your instrument (using **SENSOR > SET MODES**) are listed in the **AVAILABLE MODES** box. Click on the first mode you wish to use and then click the **INCLUDE** button to move the mode from the Available Modes box to the Selected Modes box. Only modes that are similar enough to the already-selected mode that no user

intervention is required for the dual measurements will remain available. Select the second desired mode and click **INCLUDE** again to include it. Click **OK**. Then, when the **OPTIONS > READ METHOD** menu is set as **MULTIPLE READ MODE**, the instrument will be standardized in the two modes when you initiate standardization and will read in the two modes when you initiate readings. The multiple readings are placed in the job as separate measurements.

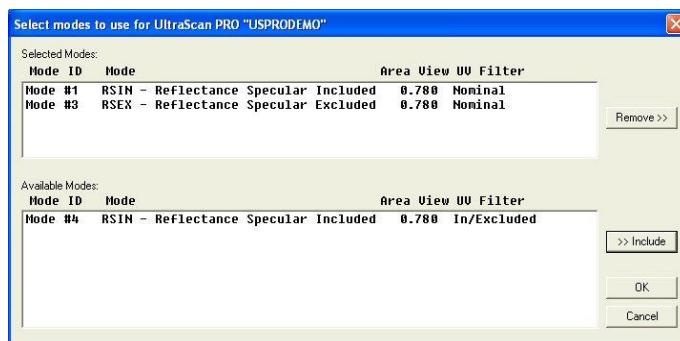


Figure 16. Select Modes

Sensor > UV Filter Calibration

The instrument is standardized in a mode for which the UV Filter Position is indicated as Calibrated.

Note: Before calibrating the UV filter, standardize the instrument in the mode referenced on the label of the fluorescent standard. If the label does not specify a standardization mode, standardize in RSEX.

UV filter calibration should be performed weekly and after lamp replacement. Once **UV FILTER CALIBRATION** is chosen from the **SENSOR MENU**, the following screen appears.

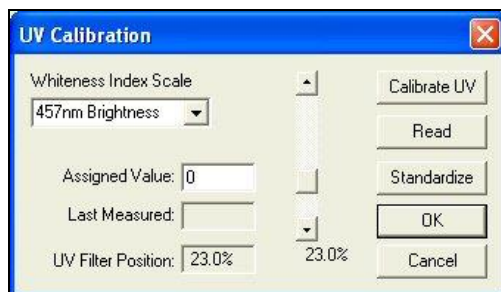


Figure 17. Calibration of UV Filter: 457 Brightness

Enter the standard's assigned value into the appropriate box on the UV Calibration screen. This value has been assigned at the factory if you are using the HunterLab-supplied fluorescent standard. Choose whether the value is for **BRIGHTNESS 457**, **WHITENESS INDEX CIE** (and the illuminant/observer combination), **WHITENESS INDEX GANZ**, or **Z%**. The scale used will be WI Ganz for a HunterLab standard.

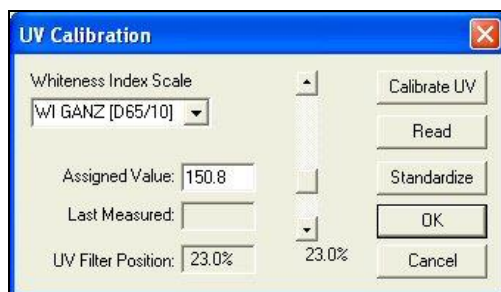


Figure 18. Calibration of WI GANZ

Select **CALIBRATE UV** to automatically adjust the UV filter to the appropriate position after several readings of the fluorescent standard. First you are prompted to place the fluorescent standard.

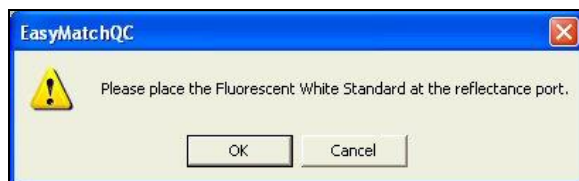


Figure 19. Prompt for Calibration of UV Filter

Place the fluorescent standard at the instrument port, centering spot 3 at the reflectance port. Use the dotted guides on the labeled side of the standard to properly center the standard under the sample clamp. Select **READ** to read the fluorescent standard with the UV filter in the position indicated at the bottom of the screen. If desired, the slider bar may be used to change the filter position between manual readings.

Click **STANDARDIZE** to initiate standardization. You will be returned to the UV Calibration screen after standardization is complete.

Measure both spot 3 and spot 4 of the fluorescent standard every six months. Compare the results. If spot 3 has faded beyond tolerable limits for your application, use spot 4 for UV filter calibration from this point on and order a new fluorescent standard (HL#A02-1011-126 [calibrated]).

Note: If you choose to employ the ‘calibrated’ filter position, this position should be employed for all routine measurements using this instrument. If you calibrated the UV filter with an open port and then you wish to use a cover glass, you must recalibrate the UV filter with the cover glass in place.

Sensor > Add Modes (UV Content)

Each LabScan XE is factory fitted with a UV filter to exclude UV content in a measurement. The procedure is to standardize in 2 modes – one with the UV Filter Out-Of-View and one with the UV Filter In-View for comparison. In this way, a numerical value for the ultraviolet contribution can be documented.

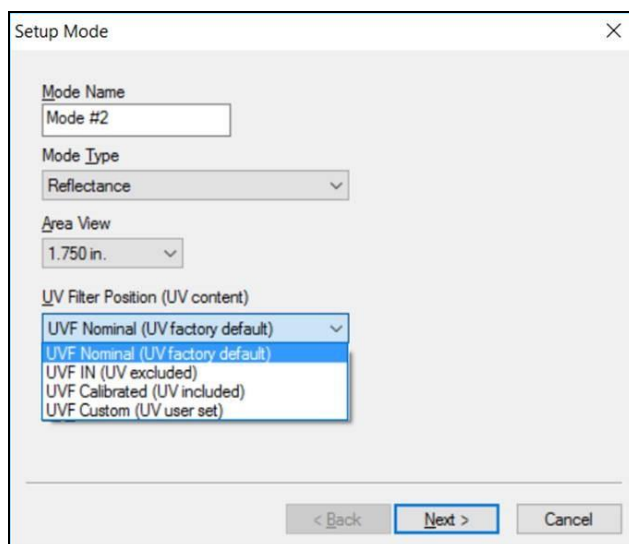


Figure 20. UV Calibration Mode Settings

- **UV Filter Nominal** position is set at factory and never changed. All Diagnostic test programs are run with the UV Filter in the Nominal position to establish a consistent optical path for the test across a model line. Some instrument models have motorized UV Control as an option. If the instrument does not have the option, the UV Filter will be fixed at the Nominal position. The instruments with motorized UV Control move the UV Filter insertion to that position.
- **UV Filter IN** creates a UV-excluded measurement for UV optically-brightened agents. The UV Filter is inserted 100% to exclude UV. This option allows the user to negate the effect of optically-brightened agents or when used in multimode with UV Filter Nominal or UV Filter Calibrated, determines the amount of optical brightening agents present.
- **UV Filter Calibrated** creates a UV-included measurement for UV optically-brightened agents). This UV calibration procedure optimizes the UV content to match D65 Daylight over

time using a Fluorescent Standard with an assigned WI Ganz value. Once calibrated to the Fluorescent standard (available as an option) with the UV filter inserted into the light path such that the measured WI Ganz value matches assigned WI Ganz value for the Fluorescent standard. This UV CAL filter position is fixed and user-set until the next UV Calibration.

- **UV Filter Custom** can create one or more UV Filter states where the UV Filter insertion point is custom set by the User.

UV filter calibration should be performed weekly and also after lamp replacement. Once **SENSOR > UV FILTER CALIBRATION** is chosen, the following screen appears.

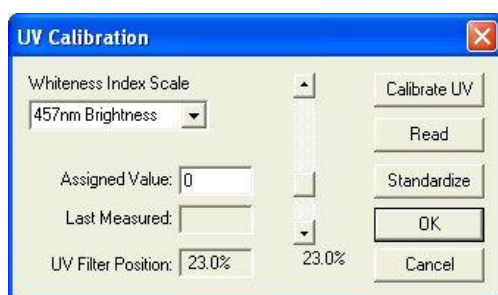


Figure 21. UV Calibration

Enter the standard's **ASSIGNED VALUE** into the appropriate box on the UV Calibration screen. This value has been assigned at the factory if you are using the HunterLab-supplied fluorescent standard. Also choose whether the value is for **BRIGHTNESS 457**, **WHITENESS INDEX CIE** (and the illuminant/observer combination), **WHITENESS INDEX GANZ**, or **Z%**. The scale used in the example will be WI Ganz for a HunterLab standard.

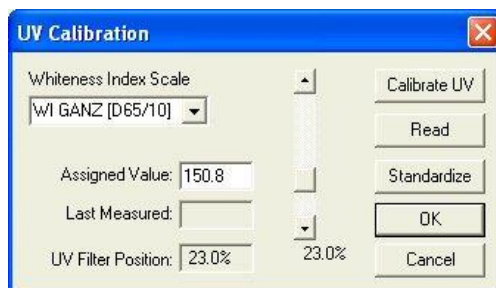


Figure 22. UV Calibration with WI Ganz

Select **CALIBRATE UV** to automatically adjust the UV filter to the appropriate position after several readings of the fluorescent standard. First you are prompted to place the fluorescent standard at the port.

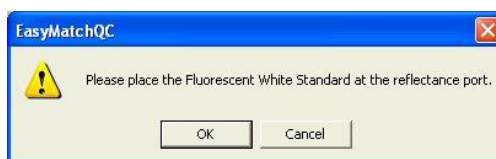


Figure 23. Prompt for Fluorescent Standard

Select **READ** to read the fluorescent standard with the UV filter in the position indicated at the bottom of the screen. If desired, the slider bar may be used to change the filter position between manual readings.

Click **STANDARDIZE** to initiate standardization. You will be returned to the UV Calibration screen after standardization is complete.

Note: When using the calibrated filter position, this position should be employed for all routine measurements using this instrument.

Note: If you calibrated the UV filter with an open port and then you wish to use a cover glass, you must recalibrate the UV filter with the cover glass in place.

Variable Sample Illumination (VSI)

Each LabScan XE can measure in large area of view or 44 mm (1.75 in illuminated) and 50 mm (2 in) measured. If your instrument has VSI, then it can also measure as follows:

- 25 mm (1.0 in) illumination; 30 mm (1.2 in) measured
- 13 mm (0.5 in) illumination; 17 mm (0.7 in) measured
- 6 mm (0.25 in) illumination; 10 mm (0.4 in) measured
- 3 mm (0.13 in) illumination; 5 mm (0.2 in) measured

To use VSI, it is important to select the port size in use and standardize with the lens zoom and the correct port plate in view. This can be saved as a mode.

Translucent Sample Measurement

All diffusely reflecting objects scatter light internally, but with translucent objects the scattering points are far apart allowing incident light to travel a long distance before it reemerges. This can make a translucent object appear to glow when illuminated at one spot. Orange juice, milk and plastics are examples of translucent materials.

Normally a translucent object is seen entirely illuminated, and the viewer tends to concentrate on a portion of the surface away from the edges to form a judgement of color. To have the instrument reading correlate well with visual, the open port area should extend well beyond the area of view. Using a smaller area of view from the port size allows the externally scattered light to leave the sample and become part of the measurement.

When standardizing for translucent measurements, insert the port plate needed and select the illumination as a mode.

LabScan XE Maintenance and Testing

The LabScan XE is engineered to be virtually maintenance free. There are no fans with air filters to change and the lamp is unlikely to need replacement over the normal expected instrument life. This section outlines the few parts of the sensor you must maintain in order for the instrument to function properly and tests that you may run to assess its performance.

Note: 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, your EasyMatch QC help file, or under the direction of HunterLab Technical Support.

Running the Repeatability Test

You may test the repeatability of your LabScan XE as follows:

1. Turn the LabScan XE on and allow it to warm it up for two hours. Meanwhile, clean the black glass and white tile and allow the tiles to return to room temperature.
2. Follow the instructions given in the **SENSOR MENU > DIAGNOSTICS** to run the **REPEATABILITY TEST** that is built into EasyMatch QC.

Running the Green Tile Test

The green tile is not used during the standardization process. Instead, the green tile is used to verify the long-term performance of your instrument. Perform the green tile test described in the **SENSOR MENU** chapter, **DIAGNOSTICS** section once a week. You can then examine all green tile readings periodically and see any trends that develop over time.

The LabScan XE should be in its standard configuration, with the largest port plate installed and the UV filter nominal, when these readings are made. The illuminant and observer used in your display must match those on the green tile.

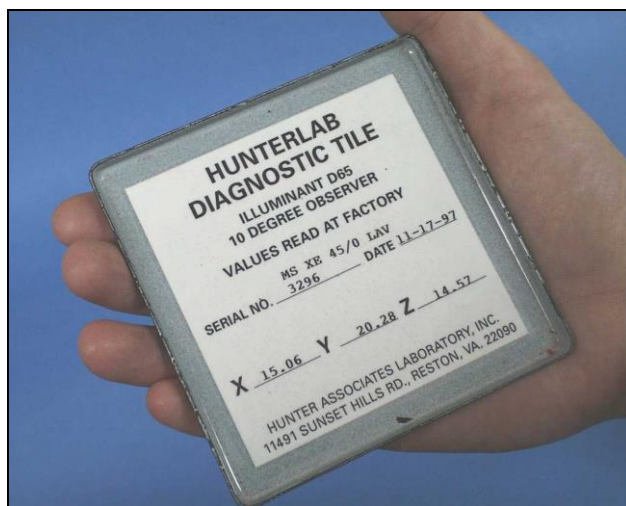


Figure 24. Diagnostic Green Tile

The green tile reading should vary by no more than ± 0.15 XYZ units from the values given on the tile. If your reading is out of this specification, first clean the standard tiles. Then standardize and re-measure the green tile again. If the reading still does not meet this specification, contact HunterLab Technical Support for assistance. Please read **WHEN YOU NEED ASSISTANCE** prior to contacting HunterLab.

Cleaning the LabScan XE

The LabScan XE is **NOT** waterproof, but you may wipe the exterior of the case with a damp cloth.

Also remove the port plate and clean the glass underneath with the included lens brush or with a small amount of soapy water on a lint-free cloth or towel.

LabScan XE 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. For optimum results, a clean, air-conditioned area is recommended with a relative noncondensing humidity of 20-80% [10-90% for sensor only] and relatively constant temperature not exceeding 32°C (90°F) or 40°C (104°F) for sensor only. For specification performance, the recommended temperature range is 21-28°C (70-82°F).

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 Characteristics

Length	36.9 cm (14.5 in)
Width	19.1 cm (7.5 in)
Height	30.5 cm (12.0 in)
Weight	10.4 kg (23 lbs)
Computer system	Depends upon system purchased. Refer to manufacturer's documentation for information.

Environmental Requirements

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

Power Required

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

Power Cord Wire Color Code:

	Color	Definition
220V Cord	Brown	LINE
	Blue	NEUTRAL
	Green/Yellow	SAFETY
110V Cord	Black	LINE
	White	NEUTRAL
	Green	SAFETY

Instrument-Computer Ground Potential Check:

Perform this check if the power cord wiring is being changed, such as for replacement of the cord or if changing the plug.

The instrument serial port ground connection is referenced to the instrument's internal frame and safety ground. Before connecting the communication cable to the instrument serial port, apply power to the instrument and the host computer. Check the ground potential (voltage) between the serial port ground pins on the computer and the instrument. The ground connection is pin 5 on DB-9 connectors and pin 7 on DB-25 connectors. Voltages in excess of 5VAC at 110V input power, or in excess of 10VAC at 220V input power may indicate a difference in ground wiring and can damage the instrument and/or the computer. Check the wiring and take other steps as needed to reduce this difference before connecting the communications cable. You may also use a data optoisolator.

Conditions of Illumination and Viewing

Geometry	0° from normal via a circumferential fiber optic ring degree illumination; 45° from normal via a 15-station circumferential fiber optic ring
Illumination	Pulsed xenon lamp with 1 billion flashes minimum
Interface Mode	Serial RS-232 or USB with adapter.
Area of View (Port Size/Measured Area in Diameter)	50 mm (2.0 in) / 44 mm (1.75 in) 30 mm (1.2 in) / 25 mm (1.0 in) 17 mm (0.7 in) / 13 mm (0.5 in) 10 mm (0.4 in) / 6 mm (0.25 in) 5 mm (0.2 in) / 3 mm (0.13 in)
Measurement Modes	Reflectance - Specular Excluded (RSEX)

Instrument Performance

Wavelength Range	400-700 nm
Wavelength Interval	10 nm
Bandpass	10 nm equivalent triangular
Photometric Range	0 to 150%

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 according to ISO/IEC Guide 22 and EN 45014 follows on the next page.



HunterLab
ISO 9001 Certified

Declaration of Conformity

Application of Council Directive: 2004/108/EC (EMC)
2006/95/EC (LVD)

Standards to which Conformity is Declared: EN 61326-1:2013
EN 61010-1:2010

Manufacturer: Hunter Associates Laboratory, Inc.
11491 Sunset Hills Rd, Reston, VA, USA

European Representative: Christian Jansen
Representative's Address: Christian Jansen, Griesbraeustrasse 11, 82418 Murnau, Germany

Type of Equipment: Spectrophotometer

Model No.: LabScanXE

*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: August 31, 2014

Full Name Tim Barrett

Position Systems Engineer

LabScan XE Options and Sample Devices

There are many options and devices available for positioning samples at the measurement ports of the LabScan XE and for making the instrument easier to use. For the latest information, please refer to <https://support.hunterlab.com/hc/en-us/articles/218375923-Accessories-for-HunterLab-Instruments>.

Automated Variable Sample Illumination

The variable sample illumination (VSI) option is installed at the factory and consists of an automatic zoom lens and four additional magnetic sample port inserts. It provides sample illumination including the 44-mm (1.75-inch) area, 25-mm (1-inch) area, 13-mm (0.50-inch) area, 6-mm (0.25-inch) area, and the 3 mm (0.13-inch) area. The illumination spot size is controlled through the software. (Refer to the **SENSOR** Menu chapter for standardization information.)

To change the area viewed, remove the magnetic sample port insert by twisting it until it pops up. Replace it with a port insert that has an opening slightly larger than the illuminated area. The white mark should be aligned to the front of the instrument.

Sample Measurement:

STANDARDIZE the instrument. The instrument automatically detects whether you have the proper port plate installed.

Change to the standard 44-mm (1.75-inch) area and standardize before performing any instrument checks, such as reading the green tile.

Note: When the zoom lens is moving to a new position, there is a slight delay and the “In progress” light flashes.

Automated UV Control

A pair of ultraviolet (UV) exclusion filters is available as an option to the LabScan XE. The filter pair includes a 380-nm UV control filter and a 420-nm UV cutoff filter. The 420-nm UV filter may be controlled separately, placed in or out of the light path, or the filters may be controlled together using the UV control options of **NOMINAL** and **CALIBRATED**. These filter positions are controlled through EasyMatch QC. The instrument should be standardized in the chosen configuration before measurements are made. A white fluorescent standard is used in the UV control and checking process.

For the measurement of optical brighteners or UV-induced fluorescence, the calibration and control of the source UV energy is important. UV-induced fluorescence can vary based on the geometry of the instrument used, the spectral properties of the simulated source (usually D65), the condition of the instrument's lamp, and the fluorescent characteristics of the sample. Using the variable UV filter set available on the LabScan XE, the proper ratio of the energy in the UV region of the electromagnetic spectrum to that in the visible region of the spectrum can be achieved and maintained. This improves the agreement of the illumination between different instruments.

Transfer standards marked with known values are used to set the correct illumination conditions. These standards are stable Spectralon® and traceable to a four-step cotton white scale from

Hohenstein Institute in Germany. Their use keeps illumination constant as a lamp ages or after a lamp change.

Sample Measurements:

For some applications, the elimination of fluorescence from a measurement is important. Fluorescence is caused by ultraviolet (UV) excitation of the sample, where a material absorbs nonvisible wavelengths of energy and re-emits the energy as light in the visible spectrum. Since UV light is part of the normal sample illumination, measurements may include UV excitation. To eliminate fluorescence from the measurement, place the UV filter (if purchased) over the sample port or use the UV control feature.

Note: It is important to know what type of fluorescence is involved for the samples being measured. Some materials fluoresce due to excitation by visible rather than ultraviolet wavelengths. The UV-absorbing filter does not eliminate this type of fluorescence.

Note: When the UV filter is moving to a new position, there is a slight delay and the “In progress” light flashes.

Retroviewer

The retroviewer consists of five lamps, a motorized mirror, and a retroscope. It is used to accurately position specimens at the sample port prior to measurement. When the retroviewer is turned on by pressing the retroviewer button, the mirror is inserted into the optical path and the lamps are turned on to illuminate the specimen, which can be viewed through the retroscope. Focus the retroscope by grasping and turning it gently. When the retroscope is screwed all the way in, the position is set for a 0.44-mm (1.75-inch) area. The area of the sample seen in the scope is what will be measured. The lamps are then turned off and the mirror automatically retracted prior to taking the measurement.

Sample Measurement:

The retroviewer has two modes of operation:

1. The lamp stays on between readings.
2. The lamp turns off after each reading.

Select the desired mode of operation using the retroviewer button as follows:

1. **Lamp Stay On Mode:** Press and hold the retroviewer button until the In-Progress light stops flashing. To turn the lamp off, press and immediately release the retroviewer button three times in a row.
2. **Lamp Turn Off Mode:** Press and immediately release the retroviewer button. The lamp will automatically turn itself off when you take a reading.

Note: In order to prevent heat build-up, the retroviewer lamps will turn off automatically after four minutes of inactivity, regardless of selected mode.

Note: When the retroviewer mirror is moving to a new position, there is a slight delay and the “In progress” light flashes.

Sample Clamp

A spring-loaded sample clamp (D02-1009-200) is available to hold samples securely at the sample port when you are measuring with the instrument in the port-up or port-forward configuration. To install the clamp, insert the horizontal clamp arm support into the mounting port in the instrument case until it stops. The clamp is easily positioned and removed using the front button to raise and lower the clamp arm and the back button to move the clamp arm in and out. Two clamp disks are provided as sample backings: white for most measurements, and black for when opacity measurements are being made. To install a different disk, simply pop out the current disk and insert the second disk. The disks are held in place on the clamp using magnets.

Note: If the clamp was ordered separately from the instrument, then your mounting port may be covered. You will need to pry up the plastic cover using a flat-head screwdriver in order to access the mounting port.

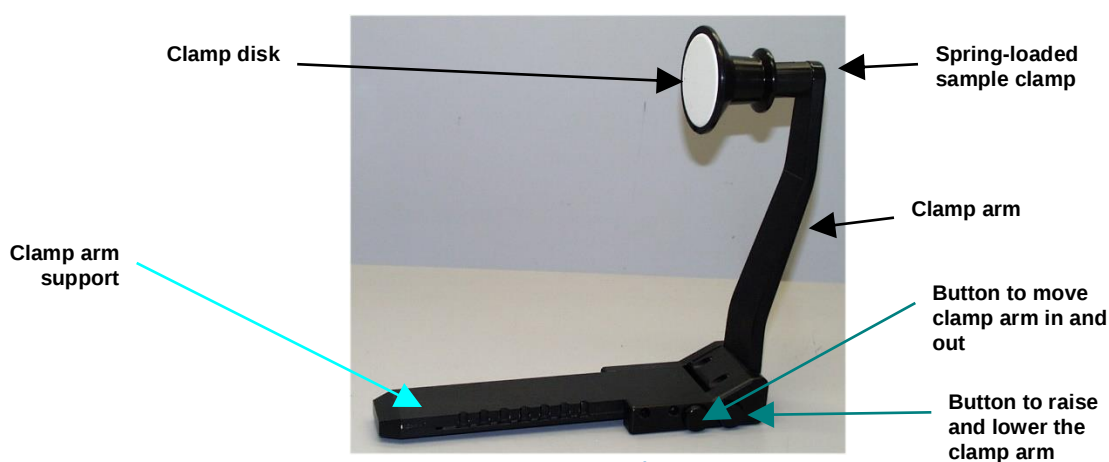


Figure 25. Sample Clamp



Figure 26. Sample Clamp in Port-Up Position

Sensor Port-Down Stand

The sensor stand (D02-1009-350) permits port-down mounting of the sensor.

Installation:

To install the instrument onto the stand, turn it with the port down and then insert the vertical support of the stand into the mounting port in the LabScan XE until it stops. Release the clamp arm trigger to raise or lower the clamp arm on the stand to a position where samples can be held firmly at the sample port using the spring action of the sample clamp.

Note: If the stand was ordered separately from the instrument, then your mounting port may be covered. You will need to pry up the plastic cover using a flat-head screwdriver in order to access the mounting port.

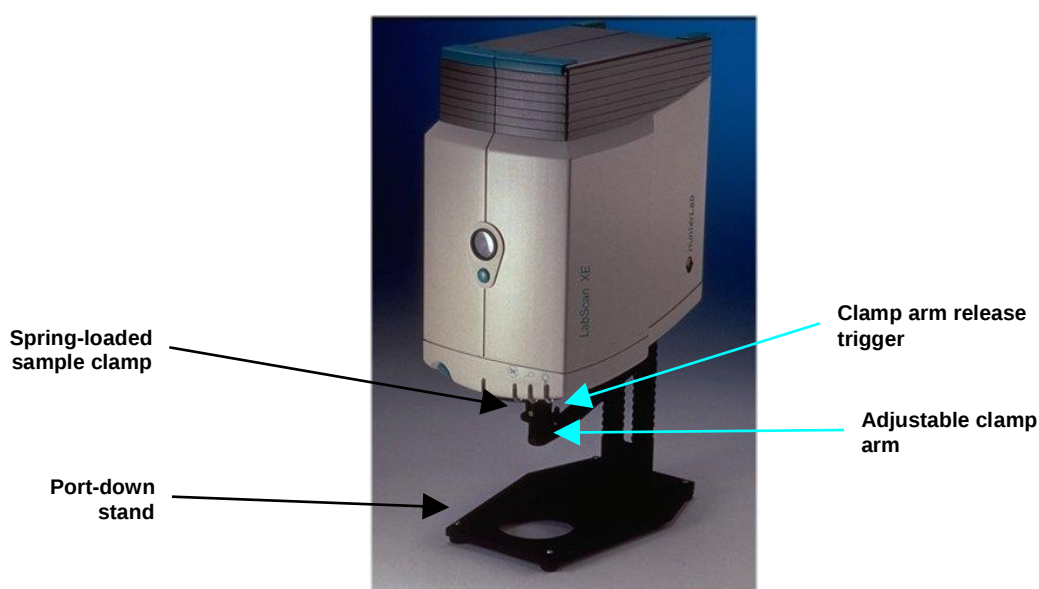


Figure 27. Port Down Version of the LabScan with Stand

Port Insert for Capsules

This port insert (A02-1013-325)-has a 19 mm x 6 mm oblong opening and is designed for measuring elongated samples such as capsules. This option requires use of the 1/4-inch VSI option for optimum results. The port insert auto-detection feature does not apply to this port insert.



Figure 28. Port Insert for Measuring Capsules

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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