

LabScan® XE

Supplemental Manual for EasyMatch® QC



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Manual Version 1.0

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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 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](#).

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>.

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.

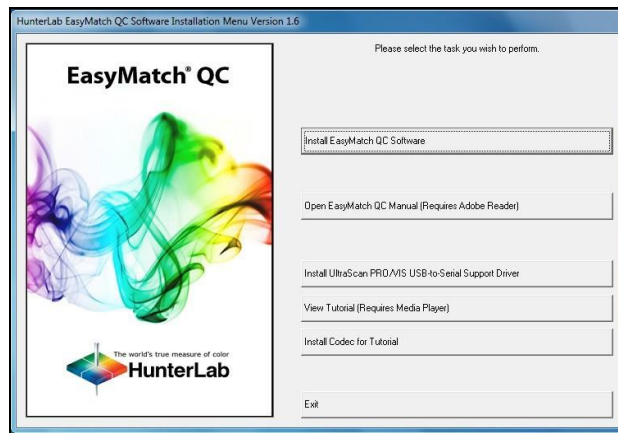


Figure 3. EasyMatch Installation

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.

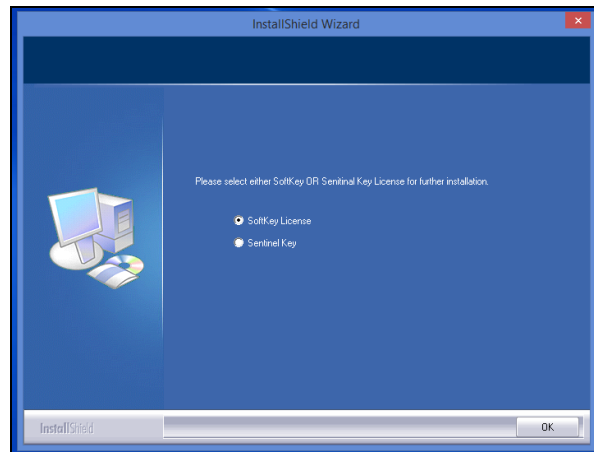


Figure 4. Software Key License

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.

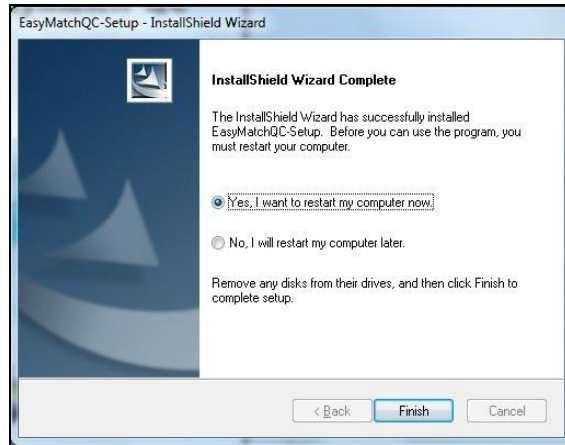


Figure 5. Completed Install

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 4.

Note: EasyMatch QC functions are unavailable before key activation.

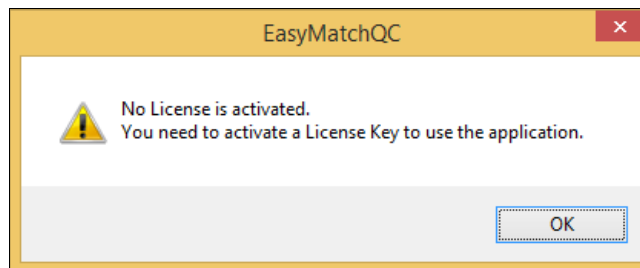


Figure 6. No License Warning

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**.

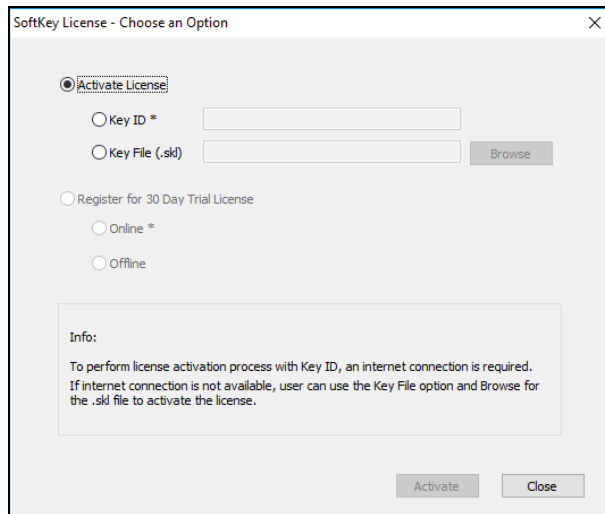


Figure 7. Activate License

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 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 7) 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.

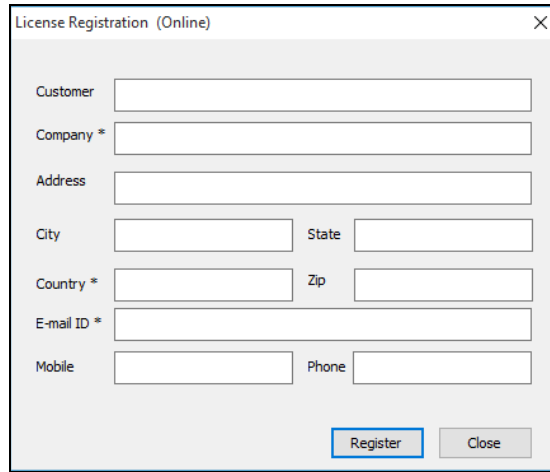


Figure 8. Request 30-day Trial

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:

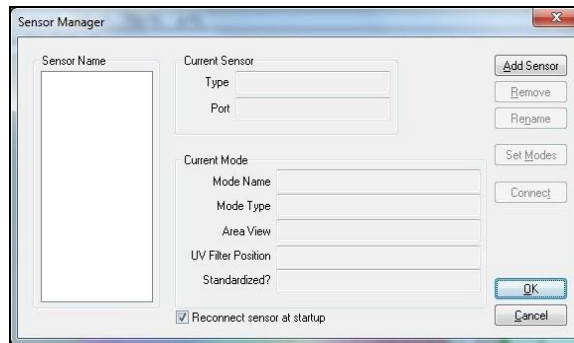


Figure 9. Sensor Manager

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.

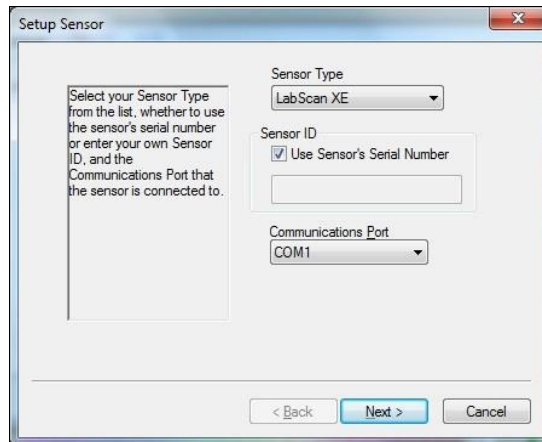


Figure 10. Setup Sensor

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.

Standardization Modes

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.

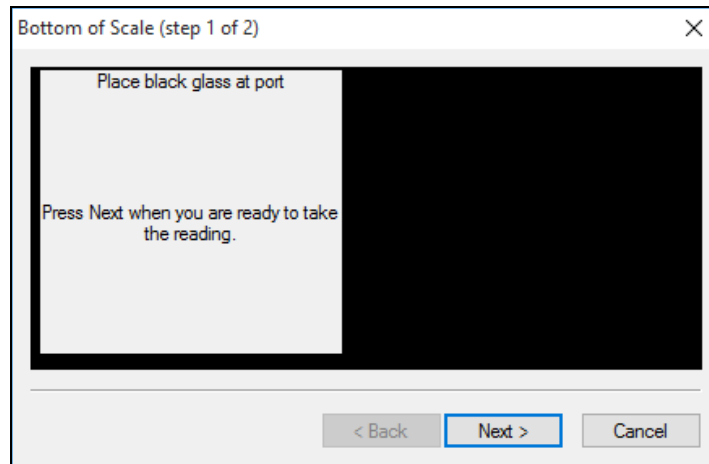


Figure 11. Standardization Steps: Black Glass

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

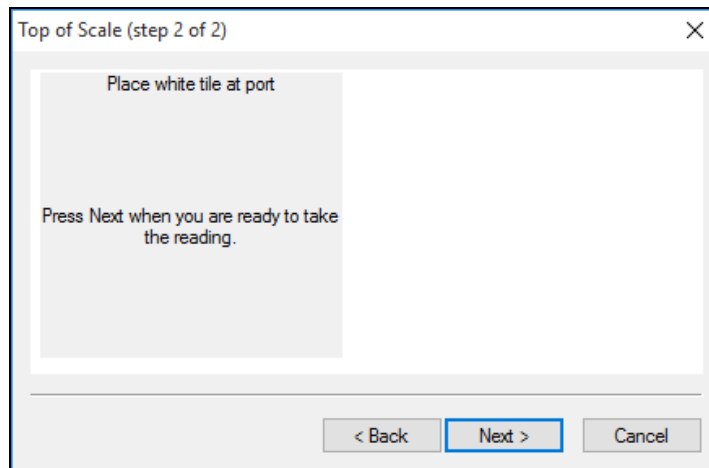


Figure 12. Standardization Steps: White Tile

Standardization Options

UV Filter

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.

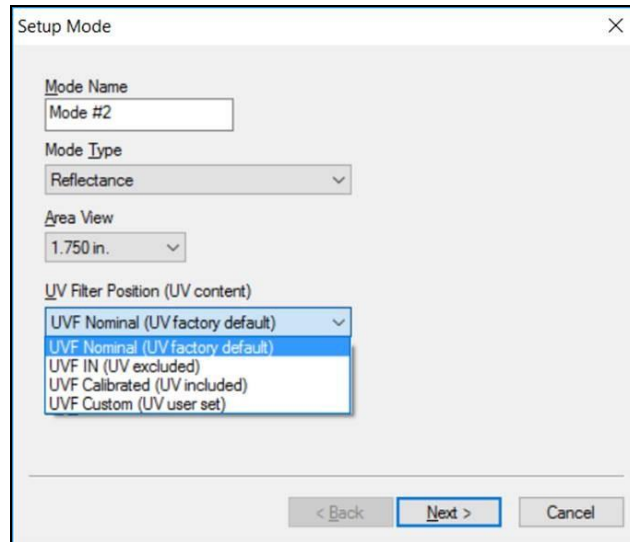


Figure 13. UV Calibration Mode Settings

- **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 of more UV Filter states where the UV Filter insertion point is custom set by the User.

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.

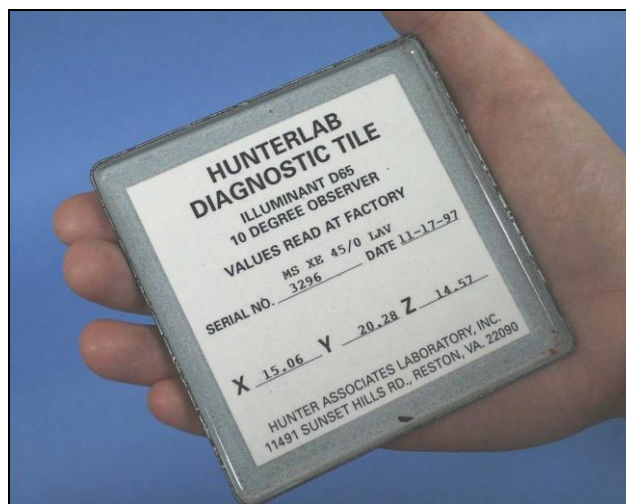


Figure 14. Diagnostic Green Tile

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 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 90°F (32°C) [104°F (40°C) for sensor only]. For specification performance, the recommended temperature range is 70-82°F (21-28°C).

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

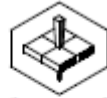
Wavelength Range	400-700 nm
Wavelength Interval	10 nm
Bandpass	10 nm equivalent triangular
Photometric Range	0 to 150%

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

Instrument Replacement, Repair, Problems, and Questions

The following HunterLab policies are described in this chapter:

- Warranty
- Claims
- Returns/Service
- Technical Assistance.

Warranty

HunterLab warrants that all instruments it manufactures are free from defects in material and workmanship under normal use. This warranty is limited to repairing or replacing any defective hardware or software that may cause the instrument to perform outside of its specified tolerances. This warranty is one year from date of shipment of new instruments and two months from the date of shipment of repaired instruments.

Note that printers and computers are covered under the original manufacturer's warranty.

The warranty is void if the user has made unauthorized repairs, improperly installed, operated, or subjected the instrument to conditions outside of the specifications in the product documentation.

The HunterLab warranty does not cover consumable items such as lamps, fuses, batteries, etc. An instrument registration card is shipped with each HunterLab instrument. It is important that the instrument owner returns this card promptly upon receipt of equipment.

Questions concerning operation, maintenance, or repair of your equipment can be directed to the Service Department at Service@hunterlab.com. Additional information can be obtained at <http://support.hunterlab.com>.

Shipping Claims

All materials are sold F.O.B. from Reston, Virginia (unless otherwise specified) and HunterLab responsibility ends upon delivery to the first carrier. All claims for loss or damage must be rendered by the consignee against the carrier within fifteen days of receipt of goods. A copy of this notice must also be forwarded to HunterLab within five days of its receipt.

Breakage or Damage

According to the contract terms and conditions of the carrier, the responsibility of the shipper ends at the time and place of shipment. The carrier then assumes full responsibility. Perform the following procedures if your instrument arrives broken or damaged.

Freight or Express

1. Notify your local carrier.

2. Hold the damaged goods with their container and packaging for inspection by the examining agent. Do not return any goods to HunterLab prior to inspection and authorization of the carrier.
3. File a claim against the carrier. Substantiate this claim with the examining agent's report. A certified copy of our invoice is available upon request. The original B/L is attached to our original invoice. If the shipment is prepaid, write for a receipted transportation bill.
4. Advise HunterLab regarding replacement.

Parcel Post Shipment

1. Notify HunterLab at once in writing, giving details of the loss or damage. This information is required for filing a claim.
2. Hold the damaged goods with their container and packaging for possible inspection by postal authorities.
3. Advise HunterLab regarding replacement.

United Parcel Service

1. Contact your local UPS office regarding damage and insurance claim. Each UPS office has a different method of handling these occurrences and yours will advise you of its procedures.
2. Retain the container and packaging.
3. Notify HunterLab at once for replacement.

Shortage

Perform the following procedure if your order appears to be missing items.

1. Check the packing list notations. The apparent shortage may be a back ordered item and may be marked as an intentional short-ship.
2. Re-inspect the container and packing material, particularly to locate smaller items.
3. Ascertain that the item was not removed by unauthorized personnel prior to complete unpacking and checking.
4. Notify HunterLab immediately of the shortage in writing.

Incorrect Shipment

Perform the following procedure if material received does not correspond with your order.

1. Notify HunterLab immediately, referencing order number and item.
2. Hold incorrect items until return shipping instructions are received.

Returns

A service request order (SRO) number is required before any items can be returned to HunterLab. Contact HunterLab's [Order Processing Department](#) to obtain an SRO for damaged or incorrect parts, or the [HunterLab Service Department](#) to obtain an SRO to return an instrument for service.

Do not return any damaged or incorrect items to HunterLab until all shipping instructions are received.

Note: HunterLab must be notified within fifteen days or we cannot accept responsibility for damaged or incorrect items.

HunterLab offers complete repair service for all instruments it manufactures. Call HunterLab for the service facility nearest your location. If your equipment is not functioning properly, contact the HunterLab Service Department for maintenance or repair instructions. Many times, this on-the-spot diagnosis is all that is required.

If repair is required, HunterLab offers two means of servicing. Instruments may be returned to a HunterLab service facility for repair or a HunterLab Service Department technician can come to your location to perform on-site repair. For schedule and terms for on-site repairs by trained service technicians, call the HunterLab Service Department. Please read "When You Need Assistance" prior to contacting HunterLab.

The customer is responsible for incoming and outgoing freight charges for instruments being returned to HunterLab for all repairs, including warranty repairs.

Packing and Shipping Instruments for Repair

Please regard the following instructions when packing your instrument to return it to HunterLab for repair. **Proper packing is crucial.** These instructions do not replace the recommended professional packaging for your instrument, but may assist in eliminating the need for a shipment claim due to faulty packaging. Purchasing freight insurance does not guarantee a successful damaged shipment claim if the carrier determines the instrument was not packaged properly.

- All instrument tiles, the didymium filter (if included), black glass or light trap, power supply, power cords, and cables for the instrument should be included in your shipment. **Your repair estimate will be delayed if the instrument tiles are shipped separately later.**
- Remove the sample clamp (if you have one) from the instrument before packing.
- Cover the measurement port. If applicable, also cover the transmission port and tape the transmission compartment door closed. **Do not use duct tape.** "Painter's tape" is preferred, as it will not leave residue on the instrument.
- Insert the instrument into an anti-static or plastic bag prior to placing it in the carton. The bag will aid in keeping packing material out of the instrument.
- Place the bag-wrapped instrument into a new carton which includes, at a minimum, **6 inches of packing material** (preferably foam) around the instrument. Styrofoam peanuts should not be used as packing material for instruments, as they can suspend items weighing only up to 5 pounds. Observe the information listed on the bottom

of most cartons regarding burst strength and gross weight limits. Single wall cardboard cartons should not be used. (A proper packing carton with packing material may be purchased from HunterLab, if desired.)

- Insure the shipment.
- Provide an itemized packing list of all contents of the shipment.
- Label the carton(s) as follows:

Hunter Associates Laboratory Inc.
Attn: SRO # _____
11491 Sunset Hills Road
Reston, VA 20190
U.S.A.

When You Need Assistance

When you have a problem with an instrument or software or need technical advice concerning a specific application, you may consult the support website (support.hunterlab.com). There are numerous articles on applications, operations, instrument accessories, troubleshooting and more. This is available 24/7. If you don't find the information that you require, then you can open a support request on the website. Please include the following information when corresponding with HunterLab.

1. The type of sensor you are using.
2. The serial number of the instrument (usually found on a tag on the back or bottom of the sensor, or inside the transmission compartment).
3. The type of software you use to access the sensor output (EasyMatch QC), the version of the software (seen after choosing **About** from the **Help** menu), the operating system, and the brand and type of computer.
4. The specific nature of the problem, including the exact error message received or the number of units the sensor reads "off" from the standard tiles.
5. The steps performed prior to the start of the problem.
6. Steps already performed to reconcile the problem and/or results of any diagnostics.
7. The type of product being measured.
8. Operating environmental conditions under which the instrument is normally used, such as temperature, humidity, dust, fumes, etc.
9. Whether the instrument has recently been moved or the computer reconfigured.
10. The name(s) of any HunterLab personnel with whom you have previously discussed the problem.

To place an order, for prices on instruments, software, or replacement parts, or to return damaged or incorrect parts, ask for the Order Processing Department. For applications advice or for help in correcting instrument or software problems, ask for Technical Support . To return instruments to

HunterLab for service, or to ask questions about the servicing or recalibration of instruments, ask for the HunterLab Service Department. To speak with HunterLab, please call 703-471-6870.

The mailing address for HunterLab headquarters is given below. Customers outside the United States should contact their HunterLab distributor for initial assistance.

Hunter Associates Laboratory, Inc.
11491 Sunset Hills Road
Reston, Virginia 20190 U.S.A.

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