

i1 | PRO

Quick Start Guide

Kurzanleitung

Manuel de démarrage

Guida introduttiva

Guía de inicio rápido

Guia de Início Rápido

クイックスタートガイド

快速入门指南

CE Declaration

Manufacturer's Name: X-Rite, Incorporated
Authorized Representative: X-Rite, Incorporated
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Model Name: i1Pro
Directive(s) Conformance: EMC 2004/108/EC LVD 2006/95/EC

FEDERAL COMMUNICATIONS COMMISSION NOTICE

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.
- Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment under FCC rules.

INDUSTRY CANADA COMPLIANCE STATEMENT

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

NOTE: USB interface cable (2.0 m) shipped with this device must be used in order to maintain compliance with the desired CE mark requirements, FCC Part 15 Rules, and Canadian ICES-003.

LED ILLUMINATION



This device contains LED's, which are classified as Exempt (no risk) under IEC62471-1:2006 or Risk Group 1 (low risk) under EN62471-1:2008. Hazard group "Blue-Light Small Source" may pose a low risk under EN62471, to minimize risk avoid looking directly at the light.

EQUIPMENT INFORMATION



Use of this equipment in a manner other than that specified by X-Rite, Incorporated may compromise design integrity and become unsafe.

This equipment is intended for use only with UL listed ITE equipment.

WARNING: This instrument is not for use in explosive environments.

ADVERTENCIA – NO use este aparato en los ambientes explosivos.

AVVERTIMENTO – NON usare questo apparecchio in ambienti esplosivi.

WARNUNG: Das Gerät darf in einer explosiven Umgebung NICHT verwendet werden.

AVERTISSEMENT: Cet instrument ne doit pas être utilisé dans un environnement explosif.

RoHS/WEEE



X-Rite products meet the Restriction of Hazardous Substances (RoHS) Directive 2002/95/EC and European Union – Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC. Please refer to www.xrite.com for more information on X-Rite's compliance with the RoHS/WEEE directives.

If this product is used in a manner not specified by the instruction, the safety protection provided by the device may be impaired or become inoperable.

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- 1** Tripod Holder Base Plate (optional)
- 2** Tripod Holder (optional)
- 3** Ambient Light Measuring Head (optional)
- 4** Protection Cover (optional)
- 5** Display Holder
- 6** Positioning Target
- 7** Calibration Plate
- 8** **i1 PRO** Measurement Device
- 9** Carrying Case
- 10** USB Cable
- 11** Backup Board
- 12** Ruler
- 13** color**checker** **PROOF** (optional)
- 14** color**checker** **CLASSIC** (optional)
- 15** Application DVD
- 16** Certificate of Performance
- 17** Quick Start Guide



i1 PRO Spectrophotometer




- 1** Limiting Aperture
- 2** Measurement Button
- 3** \propto \times Status Indicators
- 4** Type Label with Serial Number
- 5** Positioning Sensor
- 6** Reference Gap for Ruler Mount
- 7** Mounting Interface for Accessories
- 8** USB Connector



Before you can use your device or see its status, you need to install the software application on your computer. Please do not plug in the device's USB cable to your computer until after you have installed the software from the DVD.

1. Install the software application from the DVD onto your PC or Macintosh® computer.
2. Review all instructions in this Quick Start Guide before you start using your new device. For more detailed information, please refer to Contents on the software DVD.
3. Remove the "Install software and read manual before first use" warning sticker and the positioning sensor protection sticker from the device.
4. After you have completed the software installation process, attach your **i1Pro** device to your computer's USB port. If connected successfully both   status indicators light up solid white.



The X-Rite **i1Pro** will not work if it is connected to the USB port on your keyboard or to a USB hub without external power supply.
i1Pro power rating: 5 V  500 mA.

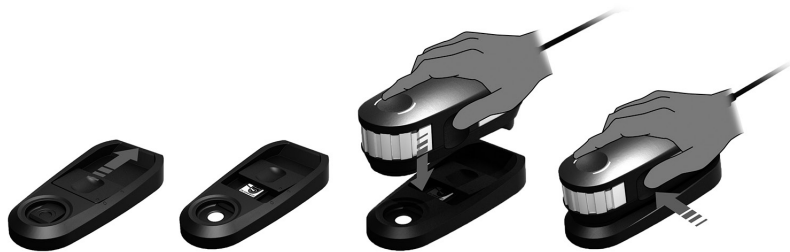


The i1Pro device is equipped with two device status indicators on its top housing. The device status indicators provide feedback on the current status of the device and guide you through the measurement process.



General device status:

- () off The device is either not connected to your computer, the software is not running, or the latest software to control the device is not installed on your computer. In the third case, the device can still be used in compatibility mode with software supporting older revisions of the **i1Pro** device.
- ⌘ ⌘ solid white The device is connected but needs calibration.
- ⌘ ⌘ pulsating white The device is connected and ready for measurement.
- ⌘ ⌘ solid red The calibration of the device failed due to a hardware problem (see troubleshooting section for further information).

To avoid interference of the device status indicators with the measurement process, the device status indicators are switched off during measurement.



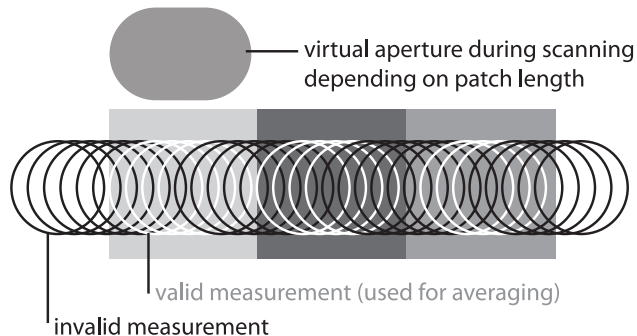
Before you start measuring, please calibrate the device. If you own multiple devices make sure that the serial number on the back of the calibration plate matches the serial number of your **i1Pro** device. Refer to the user guide of your measurement software for additional information on the calibration process.

1. In the center of the calibration plate is a slider to protect the white calibration tile. Open this protective slider until it clicks into place to access the white reference ceramic tile on this calibration plate.
2. Place the **i1Pro** measurement device on the calibration plate. The device must seat firmly on the calibration plate.
3. Set the software for calibration of the device and press the measurement button. Status indicator lights switch off during calibration. Once the device is successfully calibrated the  status indicator lights pulsate white. If the calibration fails the  status indicator lights will pulsate red and then return to solid white.
4. When the calibration is finished you should close the protective slider for the white reference ceramic tile.



A clean white reference ceramic tile is essential for providing accuracy of your measurements. The protection cover should always be closed when the white reference ceramic tile is not in use. If necessary you can clean the white reference ceramic tile with isopropyl alcohol and a soft clean cloth.

Virtual aperture technology



During a scan measurement the **i1Pro** device is performing 200 measurements per second. The automatic patch detection of the device identifies useable measurements made on a patch and unusable measurements made between two patches. Valid measurements on a patch are averaged and the device reports the averaged result to the software. Thanks to this technology the virtual aperture of the **i1Pro** device adapts to the length of a patch. For best measurement results the length of the patches on your test chart should be selected based on the resolution of your printer. For printers with lower resolution or a grainy screening you should increase the length of the patches on your test chart.

Measurement conditions


The **i1Pro** measurement device supports multiple measurement conditions. Depending on how you wish to scan a target for UV you need to measure each row of your test chart either once or twice. In a single pass scan measurement and during the first pass of the dual pass scan measurement, the patches are illuminated with the tungsten filament lamp in the **i1Pro** device. If a second pass is required the patches are illuminated with a UV LED during the measurement.

Single Pass Measurement is required for measurement condition

- ISO 13655 M0 | Tungsten filament lamp with UV included (NoFilter)

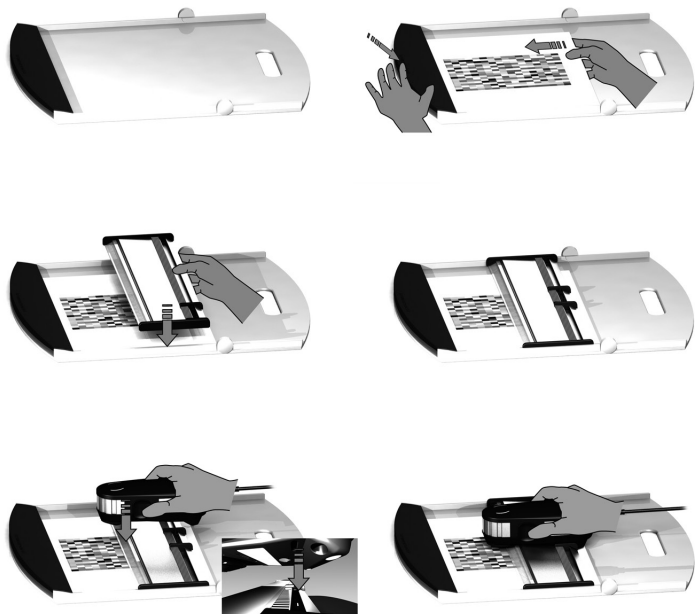
Dual Pass Measurement is required for the following measurement conditions:

- ISO 13655 M1 | D50
- ISO 13655 M2 | Illumination with UV excluded (UVcut)
- OBC | X-Rite Optical Brightener Compensation

The  Status Indicators on the **i1Pro** device guides you through the measurement process.



Dual pass scan measurements require the aluminum ruler which includes the reference required for the positioning sensor.

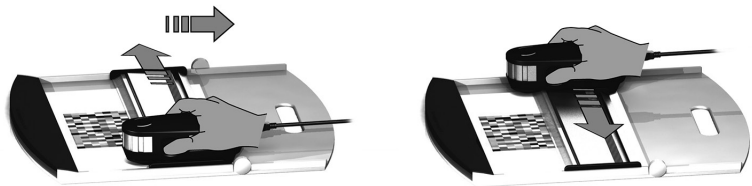




To prepare your **i1Pro** device for a scan measurement you need to mount the **i1Pro** device on the ruler. Make sure your device is calibrated and the \propto \times status indicators are pulsating white before you mount it.










1. Unfold the backup board.
2. Use the clamp to secure the test chart on the backup board.
3. Place the ruler on the backup board.
4. Position the **i1Pro** device in the carriage on the ruler. Make sure that the positioning pins on the carriage slide into the reference gaps on the bottom of the **i1Pro** device. Double-check that the **i1Pro** device seats firmly in the carriage.
5. During scanning measurement make sure that the device's limiting aperture glides smoothly on the guide rail of the ruler.

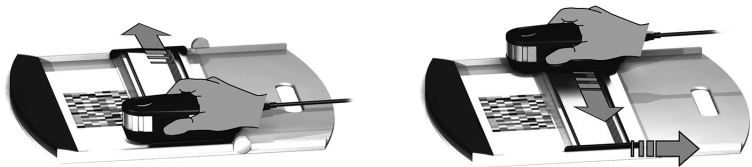


The distance between the **i1Pro** device and the surface of the printing substrate is critical for the accuracy of your measurements. If the limiting aperture of the device or the edge of the ruler's guide rail is worn out you should replace them. Spare parts can be ordered through X-Rite's Service Centers.



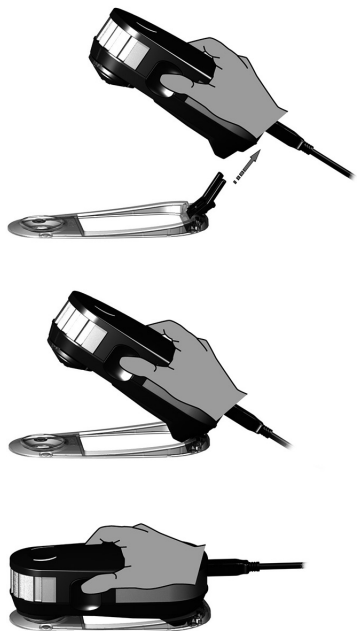
1. Make sure that your device is calibrated and the  status indicators are pulsating white.
2. Position the ruler with the device on the white paper in front of row #1 of your test chart. It does not matter if you scan the row from left to right or right to left.
3. Set your software to single scanning mode.
4. Press the measurement button on the device and wait one second before you start moving the device to the opposite site on the ruler. Hold the measurement button pressed until you have reached the far end of your test chart. The short delay before the measurement process is required to warm up the tungsten filament lamp. The  status indicators on the device provides feedback if the measurement was successful:

-   2x green flash the row was measured successfully.
 -   2x red flash the row was not measured successfully because not all patches could be recognized. Measure the row again, but reduce your measurement speed and make sure that the device starts and ends the measurement before and after the patches of the test chart.
 -   4x red flash the row was not measured successfully because you started reading the patches too early without giving the tungsten filament lamp enough time to warm up. Measure the row again but allow the lamp time to heat up before you start moving the **i1Pro** device.
 -   1x green;
 2x red flash the row was measured successfully but the software expected the measurement of a different row. Check if the row you measured is the row the software is expecting.
5. Position the ruler with the device in front of the next row of your test chart and measure the next row.



1. Make sure that your device is calibrated and the \propto status indicators are pulsating white.
2. Position the ruler with the device on the white paper in front of row #1 of your test chart. It does not matter if you scan the row from left to right or right to left.
3. Set your software to dual pass scanning mode.
4. Press the measurement button on the device and wait one second before you start moving the device to the opposite side on the ruler. Hold the measurement button pressed until you have reached the far end of your test chart. The short delay before the measurement process is required to warm up the tungsten filament lamp. The \propto status indicators on the device provide feedback if the measurement was successful:
 - \propto solid blue the first pass was measured successfully and the device is ready for a second pass with the UV LED in the indicated direction.

- \propto 2x red flash the row was not measured successfully because not all patches could be recognized. Measure the row again, but reduce your measurement speed and make sure that the device starts and ends the measurement before and after the patches of the test chart.
 - \propto 4x red flash the row was not measured successfully because you started reading the patches too early without giving the tungsten filament lamp enough time to warm up. Measure the row again but allow the lamp time to heat up before you start moving the i1Pro device.
 - \propto 1x green; 2x red flash the row was measured successfully but the software expected the measurement of a different row. Check if the row you measured is the row the software is expecting.
5. Measure the same row again in the indicated direction. The second pass will measure the row with the UV illumination only. If successful you can proceed to the next row.
 - \propto 2x green flash the dual pass measurement of a row was successful.



To prepare your **i1Pro** device for spot measurement you need to mount the **i1Pro** device on the positioning target. Make sure your device is calibrated and the X Y status indicators are pulsating white before you mount it. Refer to the user guide of your measurement software for further details on the spot measurement process.

1. Mount the **i1Pro** measurement device on the positioning target by inserting the mounting connector on the positioning target in the mounting interface at the rear of the **i1Pro** device.
2. Configure your software to take spot measurements.
3. Position the device on the patch you would like to measure.
4. Press the measurement button on the device. Status indicator lights switch off during a measurement and pulsate green X Y once the measurement has been successfully finished.
5. To remove the **i1Pro** device from the positioning target, gently pull the mounting connector with the positioning target out of the mounting interface at the rear of the **i1Pro** device.



To prepare your **i1Pro** device for a display measurement you need to mount the **i1Pro** device on the display holder. Make sure your device is calibrated and the status indicators are pulsating white before you mount it.

1. You can adjust the length of the counter weight of the display holder for the size of your screen. The counter weight is equipped with hook-and-loop fasteners on both ends which allow you to shorten and lengthen the display holder to the correct length.
2. Mount the **i1Pro** measurement device on the display holder by inserting the mounting connector on the display holder in the mounting interface at the rear of the **i1Pro** device. Make sure that the nose of the **i1Pro** device seats firmly in the display holder.
3. Fix the **i1Pro** measurement device in the middle of your screen.
4. Set the software for display measurement and start the measurement process in the application. Status indicator lights switch off during measurement.
5. To remove the **i1Pro** device from the display holder, gently pull the mounting connector with the display holder out of the mounting interface at the rear of the **i1Pro** device.



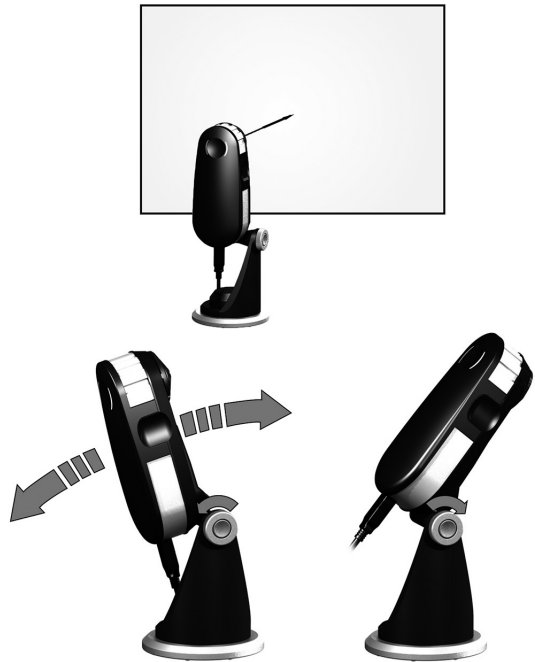
Before you start measuring, please attach the ambient light measuring head on the limiting aperture of the **i1Pro** device. If you own multiple devices make sure that the serial number on the ambient light measuring head matches the serial number of your **i1Pro** device. The ambient light measuring head can also be used in conjunction with the tripod holder.

1. The ambient light measuring head is stored in the bottom of the tripod holder. To remove the ambient light measuring head, rotate the measuring head counterclockwise until the arrow on the protection cover points to the ○ “unlocked” marking on the tripod holder.
2. Attach the ambient light measuring head on the limiting aperture of the **i1Pro** device. The arrow on the protection cover must point to the ○ “unlocked” marking on the **i1Pro** device.
3. Rotate the ambient light measuring head clockwise until the arrow on the protection cover points to the ● “locked” marking on the **i1Pro** device.
4. Pull off the protection cover from the ambient light head.
5. Configure your application software to ambient light measurement mode and press the measurement button on the device to take measurements.



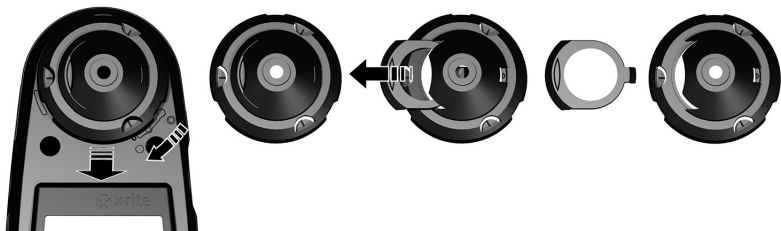
To prepare your **i1Pro** device for projector measurements you need to mount the tripod holder on the tripod holder base plate, or on a tripod with a standard 1/4" screw you supply. Next you need to mount the **i1Pro** device on the tripod holder. Make sure that your device is calibrated and the status indicators are pulsating white before you mount the device.

1. To mount the tripod holder on the tripod holder base plate, insert the 1/4" screw of the tripod holder base plate into the screw nut on the bottom of the tripod holder. Turn the tripod holder base plate clockwise until the tripod holder is fastened to the tripod holder base plate. If you are mounting the tripod holder on a tripod, follow the instructions for mounting a tripod head in the user manual of your tripod.
2. Mount the **i1Pro** measurement device on the tripod holder by inserting the mounting connector on the tripod holder in the mounting interface at the rear of the **i1Pro** device.
3. To remove the **i1Pro** device from the tripod holder, gently pull the mounting connector with the tripod holder out of the mounting interface at the rear of the **i1Pro** device.



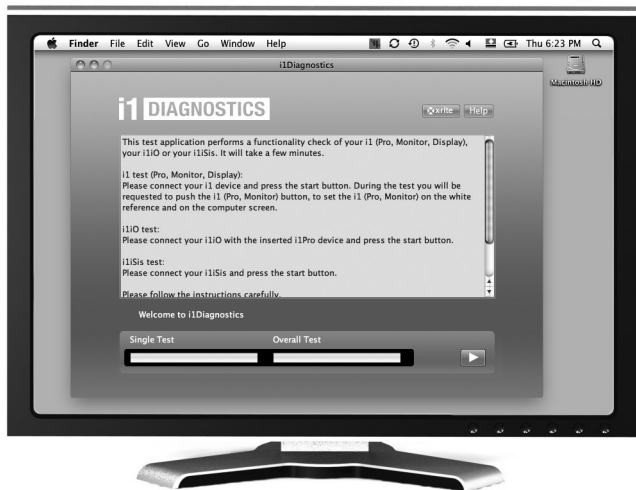
Setup the **i1Pro** device for projector measurements.

1. Place the **i1Pro** device on the tripod holder next to the projector or at a distance in front of your screen.
2. Open the locking screw on the tripod holder and adjust the angle of the **i1Pro** device. The limiting aperture of the **i1Pro** should point towards the center of your screen. Close the locking screw once the device is in the right position.
3. Adjust the lighting of your room to the same conditions as you will use for the projector and presentation.
4. Configure your software for projector measurement and follow the instructions on the screen.




To maintain the measurement performance of your **i1Pro** over its life time, it is important to observe some rules and to periodically clean certain parts that are critical for measurement performance.

- The **i1Pro** device is sensitive to mechanical shocks. To avoid damage during transport the **i1Pro** must be always shipped in its original packaging.
 - Do not store or operate the **i1Pro** device in dirty, greasy or dusty environments. Do not use the **i1Pro** in environments with temperatures higher than 35°C or less than 10°C. Do not store the **i1Pro** in environments with temperatures higher than 50°C or less than -10°C. The plastic housing of the device may be cleaned using a cloth dampened in water with a soap solution if necessary.
- The protection glass in the limiting aperture of the **i1Pro** device may become dusty after some time. You can remove the protective glass to clean it and the inside of the limiting aperture:
 1. To remove the limiting aperture turn it clockwise until the arrow points to the ○ “unlocked” position on the **i1Pro** device.
 2. Remove the limiting aperture from the device. Avoid touching the optics.
 3. Slide the slider with the protection glass out of the limiting aperture.
 4. Clean the protection glass and the inside of the limiting aperture with isopropyl alcohol on a soft clean cloth.
 5. Re-assemble the limiting aperture with the protection glass slider. Make sure that the slider snaps back into its original position.
 6. Mount the limiting aperture back on the device with the arrow pointing at the ○ “unlocked” position on the **i1Pro** device.
 7. To lock the limiting aperture turn it counter-clockwise until the arrow points to the ● “locked” position on the **i1Pro** device.
 - Keep the white reference ceramic tile clean at all times. You can clean the white reference ceramic tile with isopropyl alcohol on a soft clean cloth if required.
 - Do not touch the diffuser disc of the ambient light measuring head. If necessary, clean it with compressed air.



Diagnostic Software

Use the **i1Diagnostics** software if you believe your **i1Pro** is not functioning properly. If the  status indicators turn solid red after calibration the **i1Pro**'s internal sensor diagnostic has discovered a problem.

In this case please perform the following steps:

1. Launch **i1Diagnostics** Software.
2. Perform a functionality check by following the instructions given from the **i1Diagnostics** Software.
3. If **i1Diagnostics** software reports an error store the test report and contact your nearest X-Rite Support Center. As an alternative you can also take a look at our online support resources <http://xrite.com/support/i1Profiler> to troubleshoot your issue.

WARRANTY REGISTRATION

To receive technical support, obtain warranty service, and get the latest software updates and product news, register your new i1Pro system: www.xrite.com/register.

WARRANTY CONDITIONS

X-Rite warrants that this product against defects in material and workmanship for a period of twelve (12) months from the date of sale, unless different local regulations apply. During such time X-Rite will either replace or repair at its discretion defective parts free of charge. (Consumable parts are not covered.) This warranty shall not apply to any goods supplied hereunder which after shipment are damaged, altered in any respect, or subjected to negligent treatment. X-Rite's sole and exclusive obligation for breach of the above warranties shall be the repair or replacement of any part, without charge, which within the warranty period is proven to X-Rite's reasonable satisfaction to have been defective. Repairs or replacement by X-Rite shall not revive an otherwise expired warranty, nor shall the same extend the duration of a warranty. X-Rite shall in no event be liable for losses or costs to Buyer in manufacturing, or for Buyer's overhead, other expenses, lost profits, goodwill, or any other special, indirect, consequential, incidental or other damages to persons or property resulting from a breach of any of the foregoing warranties. There are no other warranties, either express or implied, which extend beyond the warranties set forth herein. The express warranties contained herein are in lieu of all other warranties, express or implied, including, but not limited to, the implied warranty of merchantability and fitness for a particular purpose or application. No representations or statements not expressly set forth herein shall be binding upon X-Rite as a warranty or otherwise. To obtain warranty service, you must take the Product, or deliver the Product freight prepaid, in either its original packaging or packaging affording an equal degree of protection, to an authorized X-Rite service center. Proof of purchase in the form of a bill of sale or receipted invoice which is evidence that the unit is within the Warranty period must be presented to obtain warranty service.

Do not try to dismantle the X-Rite i1Pro for any reason. Unauthorized dismantling of the equipment will void all warranty claims. Contact the X-Rite Support or the nearest X-Rite Service Center, if you believe that the unit does not work anymore or does not work correctly.

RECERTIFICATION

X-Rite recommends an annual recertification of i1Pro spectrophotometer. Contact your X-Rite dealer or the nearest X-Rite Service Center to find out more about recertification.

SERVICE CENTERS

Visit our i1Pro website at <http://www.xrite.com> to locate the nearest X-Rite Service Center or contact your X-Rite dealer for more information.

SUPPORT OPTIONS

We are confident you will be pleased with your new X-Rite product. At the same time, we understand your need for on-demand support and training in today's complex and rapidly evolving workflows. Because of this we are making the following on-line and free support tools available to registered users.

These support tools are found at: www.xrite.com/support/i1Profiler

- Free and unlimited access to the i1Profiler interactive training video; available within the i1Profiler software too.
- Free and unlimited access to the X-Rite on-line Help Desk, which includes detailed and helpful support articles related to frequently asked questions.
- Free access to X-Rite's e-mail support and call center during the warranty period for issues resulting from general product use provided:
 - You are the original registered user of the product
 - You are using the current version of i1Profiler software
 - You are using currently supported hardware and supported platform (operating system)

Because we recognize the need for advanced support related to using i1Profiler and X-Rite products in various workflows, as well as support in post warranty time periods, we are happy to offer fee based support programs and training options delivered by X-Rite's highly experienced Color Experts.

For complete information, please visit www.xrite.com/i1Profiler/Supportoptions

Spectral engine:	i1® technology (holographic diffraction grating with 128 pixel diode array) with built-in wavelengths check	Calibration:	Manual on external ceramic white reference
Spectral range:	380 - 730 nm	Measurement background:	white, ISO 13655:2009; for measurements on backup board
Physical sampling interval:	3.5 nm	Maximal media thickness:	3 mm (0.12") on backup board
Optical resolution:	10 nm	Minimal patch size in scanning mode:	7 x 10 mm (0.28" x 0.39") (Width x Height) with sensor ruler 10 x 10 mm (0.39" x 0.39") (Width x Height) without sensor ruler
Spectral reporting:	380 nm ... 730 nm in 10 nm steps	Inter-Instrument-Agreement:	0.4 ΔE_{94}^* average, 1.0 ΔE_{94}^* max. (deviation from X-Rite manufacturing standard at a temperature of 23°C (73.4°F) on 12 BCRA tiles (D50, 2°))
Measurement frequency in scanning mode:	200 measurements per second	Short-term repeatability:	0.1 ΔE_{94}^* on white (D50, 2°, mean of 10 measurements every 3 s on white)
Optics:	Measurement geometry: 45°/0° ring illumination optics, ISO 13655:2009	Emission measurement:	spectral radiance [mW/nm/m ² /sr], luminance [cd/m ²]
Measurement aperture:	4.5 mm (0.18") diameter (effective measurement aperture during scanning is depending on the patch size and measurement speed)	Measurement range:	0.2 - 1200 cd/m ² on a typical LCD-Monitor
Illumination spot size:	3.5 mm (0.14")	Short-term repeatability:	x,y ± 0.002 typ. (5000 K, 80 cd/m ²)
Light source:	Gas filled Tungsten (illuminant type A) and UV LED	Ambient light measurement:	spectral irradiance [mW/nm/m ²], illuminance [lux] cosine corrected diffusor light measurement head
Reflectance measurement:	spectral reflectance [dimensionless]	Interface:	USB 1.1
Measurement conditions:	UV included - ISO 13655:2009 measurement condition M0 D50 - ISO 13655:2009 measurement condition M1 UV excluded Filter - ISO 13655:2009 measurement condition M2		
OBC:	Optical Brightener Compensation (OBC) with i1Profiler software		

Macintosh®

Intel® CPU, Mac OS X 10.5.8, 10.6.8 or 10.7 (with latest upgrades installed), 1 GB of available RAM, 2 GB of available hard disk space, monitor resolution of 1024 x 600 pixels or higher, powered USB port, DVD drive or high speed internet connection to download, install and update the software. Dual display support requires either 2 video cards or a dual head video card that supports dual video LUTs being loaded. User must have Administrator rights to install and uninstall the application.

Windows®

Intel® Pentium® 4 or AMD Athlon XP™ or better CPU, Microsoft® Windows® XP®, Windows Vista®, Windows 7® (all 32 or 64-bit and with latest service packs installed), 1 GB of available RAM, 2 GB of available hard disk space, monitor resolution of 1024 x 600 pixels or higher, powered USB port, network adaptor installed and driver loaded, DVD drive or high speed internet connection to download, install and update the software. Dual display support requires either 2 video cards or a dual head video card that supports dual video LUTs being loaded. User must have Administrator rights to install and uninstall the application.

Important note

The X-Rite i1Pro instrument can be used with older versions of the i1Pro software development kit (SDK) which were developed for older revisions of the i1Pro. In this case the new i1Pro operates in a downwards compatibility mode as an ISO 13655 measurement mode M0 (NoFilter) device and new functions like the status indicator lights, the internal wavelengths calibration and the position sensor won't be operational. To make use of the complete functionality of this instrument check with your software supplier if newer versions of your software with the latest SDK are available.

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