

Software User Manual
Slitlamp Adapted OCT

SL SCAN-1

PC Software Edition
v.3.6.2

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1 INTRODUCTION

1.1 Introduction

The Topcon SL SCAN-1 enables the user to observe, capture and record high resolution cross sectional images of the anterior and posterior pole of the eye with a biomicroscope. Integrating the superior imaging technology of Optical Coherence Tomography (OCT) on a slit lamp enhances the diagnostic capabilities of a slit lamp examination significantly since main depth related disorders can not be well observed with a standard slit lamp examination. For flexible usage, the reference scan line in the ocular allows you to position the OCT scanning beam to any possible location.

Using the Topcon SL SCAN-1 in combination with an add-on digital camera allows the user to record an en-face image taken by the camera and the cross section image taken by the OCT system simultaneously. Both can be stored on a standard personal computer allowing you to view and analyze the data in later stage.

Apart from the excellent imaging capabilities, the Topcon SL SCAN-1 increases patients comfort, reduces examination time and enhances the patient flow through your department.

The software of the SL SCAN-1 is fully integrated in Topcon's patient management package IMAGEnet i-base. The SL SCAN-1 software consists of two main groups of software functions (1) The SL SCAN-1 plugin and (2) IMAGEnet i-base.

The functions of the SL SCAN-1 plugin are:

- communicate with the SL SCAN-1 via an USB connection
- set up the parameters such as the segment, scan pattern, scan length, etc
- set up the used optics
- customize the live window.

The functions of IMAGEnet i-base are listed in the user manual of IMAGEnet i-base. After capturing, the OCT images are displayed in IMAGEnet i-base and can be stored under the corresponding patient.

1.2 Purpose of this Manual

This manual describes the functionality and operation procedures of the SL SCAN-1 plugin.

NOTE	Please consult the IMAGEnet i-base CD-ROM for instruction on the IMAGEnet i-base.
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1.3 Intended Use

The Topcon SL SCAN-1 is intended for use to observe, capture and record images and tomograms of the anterior and posterior segment of the human eye for diagnosis.

1.4 Escape Clauses

- TOPCON shall not take any responsibility for damage due to fire, earthquakes, actions by third persons and other accidents, or damage due to negligence and misuse by the user and any use under unusual conditions.
- TOPCON shall not take any responsibility for damage derived from inability to properly use this instrument, such as loss of business profit and suspension of business.
- TOPCON shall not take any responsibility for damage caused from using this instrument in a manner other than that described in this Instruction Manual.
- Diagnoses made shall be the responsibility of pertaining doctors and TOPCON shall not take any responsibility for the results of such diagnoses.

1.5 System Description

1.5.1 Topcon SL SCAN-1 Hardware

The Topcon SL SCAN-1 is a system that may contain the following instruments, components and accessories:

1. Topcon Slit lamp SL-D7, SL-D4 or SL-D2
2. Topcon Slit lamp Adapted OCT SL SCAN-1
3. Topcon Digital Camera (such as DC3/DV3)
4. Personal Computer (PC)

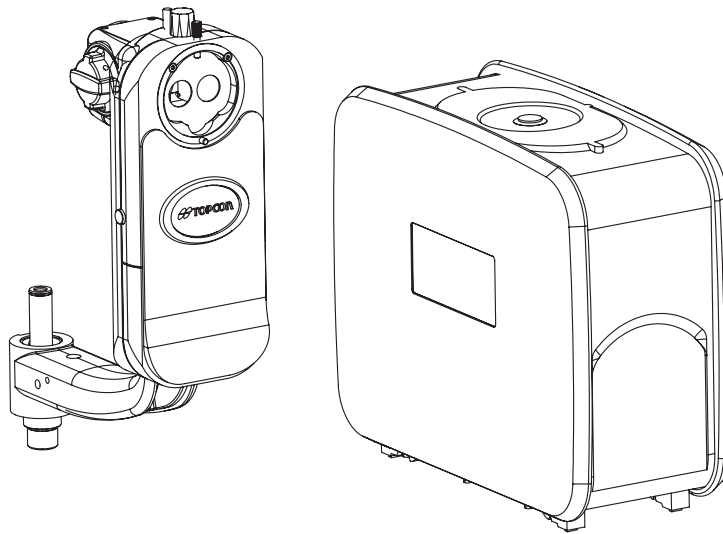
The Topcon SL SCAN-1 is an accessory for the Topcon slit lamps type SL-D7, SL-D4 and SL-D2. The Topcon SL SCAN-1 accessory attached to the slit lamp do not give any restriction to the functionality of the slit lamp or its accessories. Equivalently, all accessories remain their full functionality when the Topcon SL SCAN-1 accessory is attached to the Slit lamp

Topcon's SL SCAN-1 is based on Fourier Domain Optical Coherence Tomography (FD-OCT) that produces live images at a rate of ± 10 images / second¹. The optics of the slit lamp allows the user to view the patients eye and simultaneously obtain high resolution cross sectional images of either the anterior and posterior segment of the human eye. In case of imaging the posterior segment of the eye, the doctor uses it's hand-held lens according to the standard ophthalmic procedure.

The principle of OCT and applied in the Topcon SL SCAN-1 is based on a Michelson Interferometer; light emitted of an 840 nm super luminescent light emitting diode (SLD) is split by a beam splitter in two beams. One is directed into the reference arm and is reflected by a reference mirror, and the other beam is directed into the sample arm and is reflected by a tissue sample. The back reflected beams recombine at the beam splitter and are guided to a detector, which is a spectrometer. The heart of OCT setup is located in the SL SCAN-1 Base Unit. The so called sample arm is mainly covered by the SL SCAN-1 Scan Unit and the slit lamp.

The spectrometer resolves the optical interference signal, converts it to an electrical signal and passes it to the PC. The PC processes the data stream and converts this into an image. The tomograms are visualized on the monitor by Topcon's software package IMAGE net i-base. Using the Topcon SL SCAN-1 in combination with an add-on digital camera, allows the user to record an en-face image taken by the camera and the cross section image taken by the OCT system simultaneously. Both can be stored on a standard personal computer allowing you to view and analyze the data in a later stage.

¹.Based on 1024 A/scans per B/scan



1.5.2 Topcon SL SCAN-1 Software

The software of the SL SCAN-1 is fully integrated in Topcon's patient management package IMAGEnet i-base. The SL SCAN-1 software consists of two main groups of software functions (1) The SL SCAN-1 and (2) IMAGEnet i-base.

The functions of the SL SCAN-1 plugin are:

- communicate with the SL SCAN-1 via an USB connection
- set up the parameters such as the segment, scan pattern, scan length, etc
- set up the used optics
- customize the live window.



The functions of IMAGEnet i-base are listed in the user manual of IMAGEnet i-base. After capturing, the OCT images are displayed in IMAGEnet i-base and can be stored under the corresponding patient.

1.6 Display for Safe Use

To encourage safe and proper use and to prevent injury to the operator and others or potential damage to property, important messages are put on the instrument body and inserted in the instruction manual.

We suggest that everyone understands the meaning of the following displays, icons and text before reading the "SAFETY CAUTIONS" and observe all listed instructions.

DISPLAYS


Display	Meaning
 WARNING	Incorrect handling by ignoring this display may lead to a risk of death or serious injury.
 CAUTION	Incorrect handling by ignoring this display may lead to personal injury or physical damage.
<ul style="list-style-type: none">• Injury refers to cuts, bruises, burns, electric shock, etc. which do not require hospitalization or extended medical treatment.• Physical damage refers to extensive damage to the building, nearby equipment and/or surrounding furniture.	

1.7 License

The software for this product was partially written with National Instruments (TM) compilers and includes National Instruments software packages.

1.8 Measurement Function

The measurement function is a part of IMAGEnet i-base. Please consult the online help (F1) in the latest version of i-base for more information on the conditions and accuracies of this function.

 CAUTION	The horizontal component of the measurement function depends on the relation between the optics settings i.e. magnification of the slitlamp and hand-held lens AND the settings selected in the plug-in. The horizontal measurement function is not reliable if this is not set correctly by the user.
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2 GETTING STARTED

2.1 Starting and Exiting the IMAGEnet i-base program

To start IMAGEnet i-base:

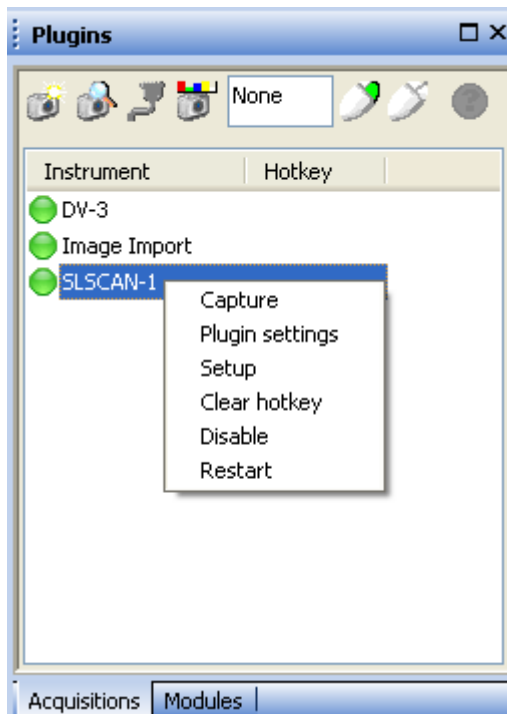
1. Click **Start** to open the Start menu on the title bar
2. Select Programs and then **TOPCON** → **IMAGEnet i-base** → **IMAGEnet i-base** from the submenu.

To Exit the IMAGEnet i-base:

1. Click the Close icon 

2.2 Plugin

The plugin window in IMAGEnet i-base can be showed from the view menu



2.2.1 Status of the SL SCAN-1 plugin

The SL SCAN-1 plugin can have three statuses:

- Green:** available
Yellow: not available
Red: not available

The red status of the plugin can have the following causes:

Cause	Check	To do
Driver not installed	Device manager of the PC	Install the drivers according the installation manual of IMAGEnet i-base
Plugin installation failed		Repair IMAGEnet i-base from "Add and remove programs"

The yellow status of the plugin can have several causes:

Cause	Check	To do
Driver not correctly installed	Device manager of the PC	Install the drivers according the installation manual of IMAGEnet i-base
SL SCAN-1 is in standby mode	STANDBY button is orange	Press the STANDBY button
SL SCAN-1 is off	ON/OFF switch	Switch on the SL SCAN-1
SL SCAN-1 is disabled by IMAGEnet i-base	"Enable" can be found in the plugin menu	Enable the plugin by clicking "Enable" in the plugin menu (right mouse click on the plugin)

2.2.2 Plugin menu

The plugin menu can be used by clicking with the right mouse button on the SL SCAN-1 plugin.

Capture	Described in 2.2.3.
Plugin settings	Shows the SL SCAN-1 acquisition module dialog with live window.
Setup	Shows the setup dialog (See 2.2.4.)
Clear hotkey	Remove the defined hotkey from the SL SCAN-1 plugin
Disable/Enable	Disable or Enable the SL SCAN-1 plugin
Restart	Restart the SL SCAN-1 plugin
Help	Starts the online help for the SL SCAN-1 plugin

2.2.3 Capture

There are two different phases. On each phase the capture has a different function.

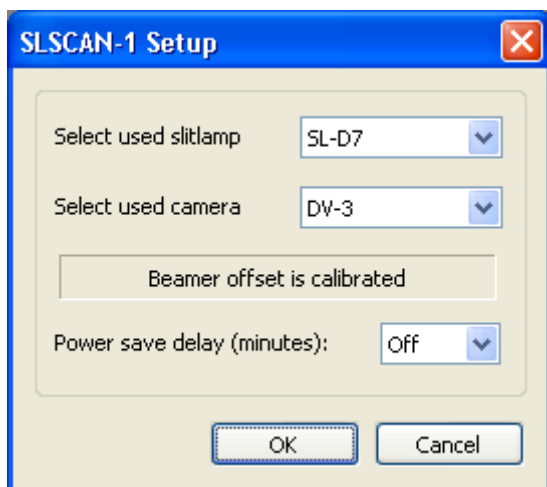
1. SL SCAN-1 is not started

With the "Capture" of the plugin menu the SL SCAN-1 the Acquisition module is shown and (when the slitlamp magnification and the hand-held lens is set) the SL SCAN-1 is started.

2. SL SCAN-1 is already started.

With the "Capture" of the plugin menu the SL SCAN-1 scans the selected scan pattern and if there is a camera connected there is an image captured from that camera.

2.2.4 Setup



The setup of the SL SCAN-1 acquisition plugin handles the:


- Used slitlamp: Select the slitlamp that is used with the SL SCAN-1. SL-D2, SL-D4 or SL-D7
- Used camera: Select the camera that is used with the SL SCAN-1. DC-1 (USB 1.1 or 2.0), DC-3, DV-1 or DV-3. Some camera functionality are not available when the camera is used in combination with the SL SCAN-1. To use only the camera disable the SL SCAN-1 in the plugin window.
- Power save setting: Default this setting is off. With this setting it is possible to switch the power save off or set the power save on with a minimum of 1 minute and a maximum of 60 minutes.

The SL SCAN-1 Setup shows a message about the beam offset. This message indicates if the beam offset is calibrated or not.

The beam offset needs to be calibrated in case a digital camera is connected to the SL SCAN-1. The offset position is used to project the scan patterns correctly on the camera images after capturing. The offset position is calibrated by a Topcon representative during the installation of the SL SCAN-1 and/or digital camera. Please consult a Topcon representative if the beam offset is not calibrated or not correct.

The tolerances depend on the magnification. The table states the maximum error of the project scan pattern on the camera images

Magnification	Micron
40x	<40
25x	<64
16x	<100
10x	<160
6x	<270

 CAUTION	<p>Each time the camera is installed on the Scan Unit, the beam offset needs to be check and/or recalibrated. Please contact a Topcon representative to calibrate the beamer offset.</p>
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2.2.5 Hotkey to SL SCAN-1



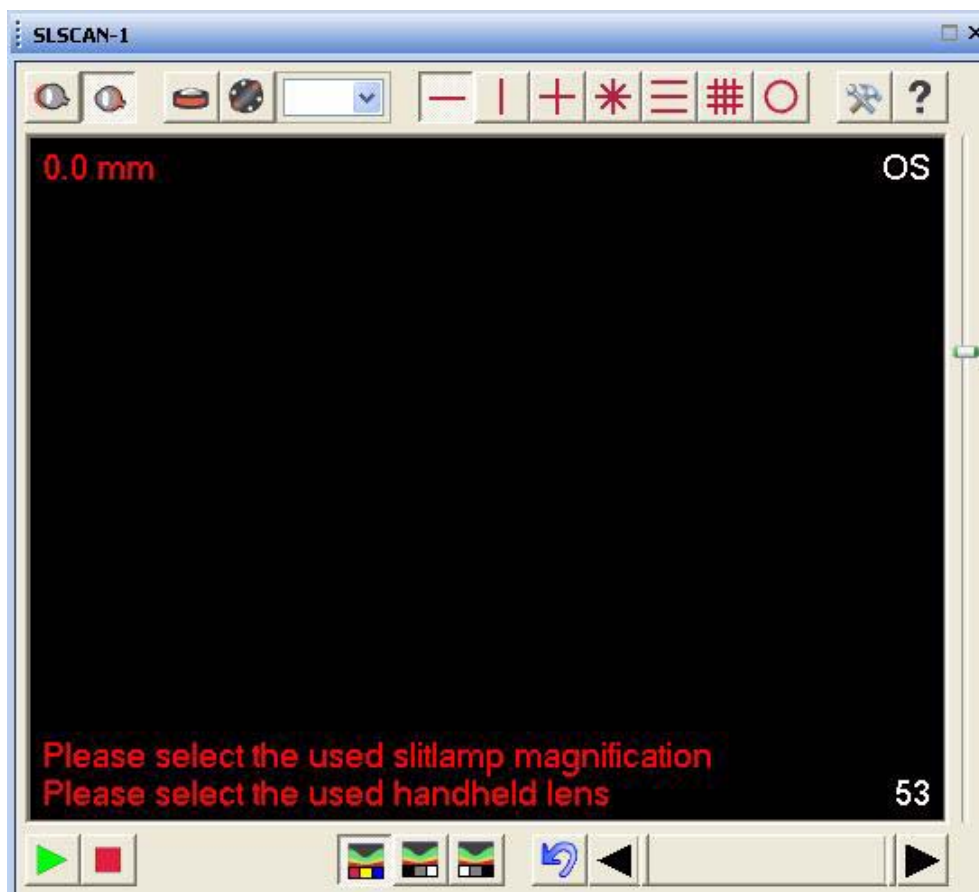
It is possible to assign a hotkey to the SL SCAN-1 plugin. Type any key combination in the hotkey edit control in the toolbar of the plugins window and press the **assign hotkey** button.

The hotkey can now be used to start the SL SCAN-1 or start capturing (when the SL SCAN-1 was already started).

To remove the hotkey press the **clear hotkey** button in the plugins window toolbar.

2.3 Acquisition Module toolbar icons

The SL SCAN-1 acquisition plugin shows the controls to operate the SL SCAN-1 and the live OCT image.





Start scanner



Stop scanner



Examine the anterior segment of the eye

NOTE	This function works only properly if the magnification setting on the slitlamp are set on either 10x or 25x. The SL SCAN-1 might pick-up structures at the other magnification settings, but since the performance and specifications can not be guaranteed, this is not supported.
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Examine the posterior segment of the eye.

NOTE	This function works properly for all magnifications of your slitlamp
NOTE	The SL SCAN-1 supports most commercial available hand-held lenses of VOLK and OCULAIR. The supported lenses are listed in the next paragraph.



Scan a horizontal line



Scan a vertical line



Scan a cross pattern



Scan a radial pattern



Scan a raster pattern



Scan a grid pattern



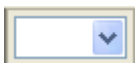
Scan a circle pattern



Change settings for the current scanning pattern



Opens the help



Set the scan length



Magnification setting of the slitlamp



Handheld lens setting



Scan a horizontal line



Visualize the live image in color



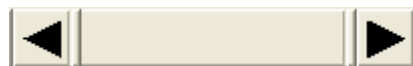
Visualize the live image in grayscale



Visualize the live image in inverted grayscale



Returns to the default factory settings



Adapt the boundaries of the color/black and white spectrum , in order to optimize the perceived image quality.

3 SL SCAN-1 OPERATION: CAPTURING OF OCT IMAGES

Capturing images with SL SCAN-1 usually requires the following steps:

1. Prepare the SL SCAN-1
2. Preparing the patient in IMAGEnet i-base
3. Scan segment (Anterior/Posterior)
4. Indicate Slitlamp magnification
5. Indication Handheld lens (posterior)
6. Select scan length
7. Select scan pattern and the scan patterns settings
8. Start examining the patient
9. Start SL SCAN-1
10. Capturing
11. Saving or deleting captured scans.

3.1 Preparing the SL SCAN-1

Prepare the SL SCAN-1 according to paragraph 6.1 of the Instruction Manual of the SL SCAN-1.

3.2 Preparing the patient in IMAGEnet i-base

Select the patient in IMAGEnet i-base or, if the patient is not there, create a new patient and enter patient information. Selecting and creating patients according the user manual of IMAGEnet i-base.

3.3 Scan segment (Anterior/Posterior)

Choose the scan segment.



for anterior and



for posterior.

3.4. Indicate slitlamp magnification

Button in the acquisition window:

The magnification is needed to determine the correct scan length, overlay and horizontal measurements.

For the anterior segment, the total magnification only consist of the slitlamp magnification. The total magnification for the posterior segment is a combination of slitlamp magnification and hand-held lens or fundus viewer. The magnification of the human eye is defined by the Gullstrand Eye.

The slit lamp magnification settings depend on the slitlamp type

SL-D4/D7: Unknown / 6x / 10x / 16x / 25x / 40x

SL-D2: Unknown / 10x / 16x / 25x


NOTE	Due to the importance of the magnification setting(s), the system does not start if the user has not filled in the slit lamp magnification and/or hand-held lens.
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**CAUTION**

The system can not verify whether the settings in the software correlate with the settings of the system. Therefore it is the responsibility of the user that the settings in the software are correct.

Feedback of the magnification settings are given in the live window. If setting is 'unknown', the characters are red and the system does not start. At start-up of the software the system automatically takes this setting. For every other setting the characters are white.

3.5 Indicate Hand-held lens

Button in the acquisition window: 

The following list of hand-held lenses is supported by the system:

Supplier	Lens Name
Topcon	Fundus Viewer (FV-1L)
VOLK	60D Classic
	78D Classic
	90D Classic
	Super 66
	SuperField
	Super VitreoFundus
	SuperPupil XL
	Digital High Mag
	Digital 1.0x Imaging
	Digital Wide Field
Ocular	Maxlight Ultra Mag 60
	Maxlight High Mag 78
	Maxlight Standard 90
	Maxfield 54D
	Maxfield 60D
	Maxfield 66D
	Maxfield 72D
	MAXFIELD® HIGH MAG 78D
	OSHER MAXFIELD® 78D
	MAXFIELD® 84D
	MAXFIELD® STANDARD 90
	MAXFIELD® 100D
	MAXFIELD® 120D
	ULTRA VIEW SMALL PUPIL

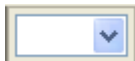
The hand-held lens setting is remembered. At start-up this lens is selected as default. The idea is that users use in most of the cases a single hand-held lens.

NOTE

Due to the different material of the hand-held lenses, and due to a large variety of possible coatings, the performance of the SL SCAN-1 in terms of image quality might be affected.

3.6 Select scan length

Drop down box in the acquisition window:



The list of possible scan lengths depends on the selected segment and the scan pattern and is automatically indicated.

POSTERIOR		
Scan pattern	Scan length	Default
Horizontal/Vertical/Cross	2, 4, 6, 8, 10, 12 mm	12 mm
Radial/Raster/Grid	2, 4, 6, 8, 10 mm	10 mm
Circle (diameter)	2.4, 3.0, 3.4 mm	3.4 mm

ANTERIOR		
Scan pattern	Scan length	Default
Horizontal/Vertical/Cross 10x	6, 8, 10, 12, 15 mm	15 mm
Radial/Raster/Grid 10x	6, 8, 10 mm	10 mm
Circle (diameter) 10x	6, 8 mm	8 mm
Horizontal/Vertical/Cross 25x	2, 4 mm	4 mm
Radial/Raster/Grid 25x	2, 4 mm	4 mm
Circle (diameter) 25x	2.4, 3.0, 3.4 mm	3.4 mm

The scan length has a maximum that is related to the magnification settings of the slit lamp and the type of the hand-held lens. It is not possible to set the scan length higher than the maximum calculated scan length.

The list of scan length is blank until the magnification settings have been indicated. If the scan length is not sufficient, please change the magnification setting of the slit lamp and/or the hand held lens.

3.7 Select scan pattern and related settings

3.7.1 Select scan pattern

Button in the acquisition window:

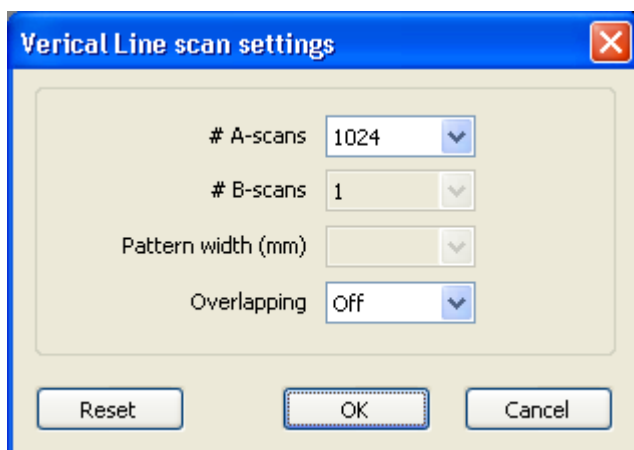


During examination of the cross, radial, raster, grid and circle pattern the central horizontal axis is displayed in the live window. Only during capturing the selected pattern is activated.

3.7.2 Change scan pattern settings

Button in the acquisition window:

The scan pattern settings for the current scanning pattern can be changed. A scan settings dialog appears.



#A-scans This function allows the user to modify the number of A-scans

#B-scans This function allows the user to modify the number of B-scans

Pattern width This function allows the user to modify the default pattern size in millimeter. The pattern width cannot be higher than the maximum scan length.

Overlapping This function allows the user to overlap a number of images

With the reset button it is possible to reset to the default settings.

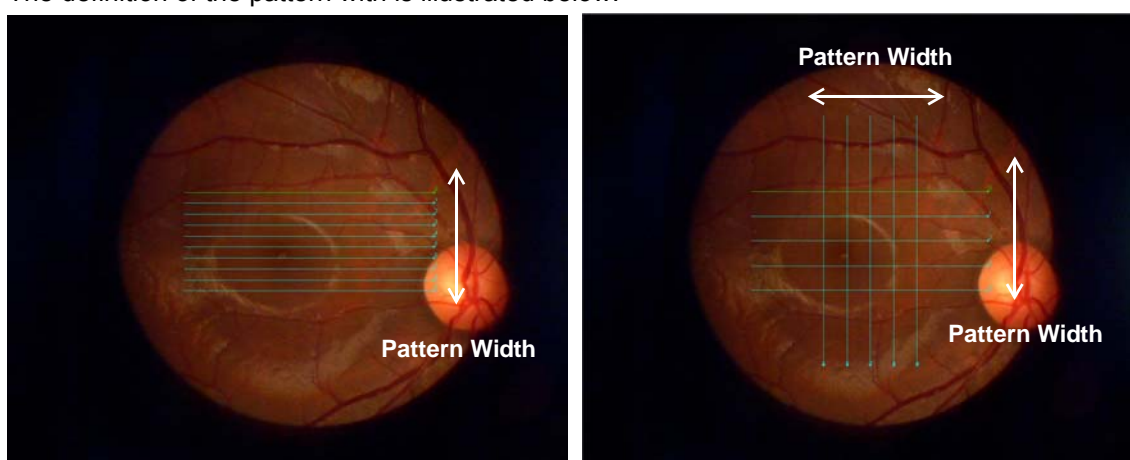
The possible settings for still images are shown in the table below:

Posterior & Anterior	#A-scans	#B-scans	Pattern width (mm)	Overlapping
Horizontal line	512 1024 2048	1	-	Related to the #A-scans 512 max 8 1024 max 4 2048 max 2
Vertical line	512 1024 2048	1	-	Related to the #A-scans 512 max 8 1024 max 4 2048 max 2
Cross	512 1024 2048	2	-	Related to the #A-scans 512 max 8 1024 max 4 2048 max 2
Radial	512	3-10	-	-
Raster	512	2-10	min 0,5 max 10.0	-
Grid	512	4-10	min 0,5 max 10.0	-
Circle	512 1024 2048	1	-	-

The default settings for still images (posterior and anterior) are shown in the table below:

Posterior & Anterior	#A-scans	#B-scans	Pattern width (mm)	Overlapping
Horizontal line	1024	1	-	Off
Vertical line	1024	1	-	Off
Cross	1024	1	-	Off
Radial	512	1	-	Off
Raster	512	5	1.0	Off
Grid	512	6	2.0	Off
Circle	1024	1	-	Off



The definition of the pattern width is illustrated below:



The scan pattern in combination with the scan length and pattern width allows the user to choose between scanning an overview or scanning smaller areas with higher densities. The radial scan pattern is ideal if the user wants to have a trade-off between high density in the center and overview in the periphery. The maximum scanning time is limited to 1 sec to reduced the side effect of movement artifacts.


3.8 Start examining the patient

Start the examination of the patient.

 CAUTION	The image quality is inversely proportional to movement of the patient. Movement of the patient diminishes the image quality of the OCT scans. Make sure the patient is positioned properly with the chin in the chin rest and the forehead against the stability belt.
 CAUTION	The image quality is inversely proportional to movement of the hand-held lens. Movement of the hand-held lens diminishes the image quality of the OCT scans. Make sure that you keep the hand-held lens still during acquisition.

3.9 Start SL SCAN-1

There are four possible ways to start the SL SCAN-1:

1. Use the start button inside the acquisition dialog 
2. Click on the joystick button of the slit lamp.
3. Use a hotkey in the plugin window
4. Capture from plugin window

The SL SCAN-1 switches between two modes (automatically):

1. Mode 1 has no signal. The scanner scans fast at a low image resolution (100 A-scans \ B-scan) to enhance the searching speed.
2. Mode 2 has a signal (from cornea, sclera etc.). The scanner scans at a slower rate but with a higher resolution (512 A-scans \ B-scan)

3.10 Capturing

While the SL SCAN-1 is started a live window is displayed inside the acquisition dialog

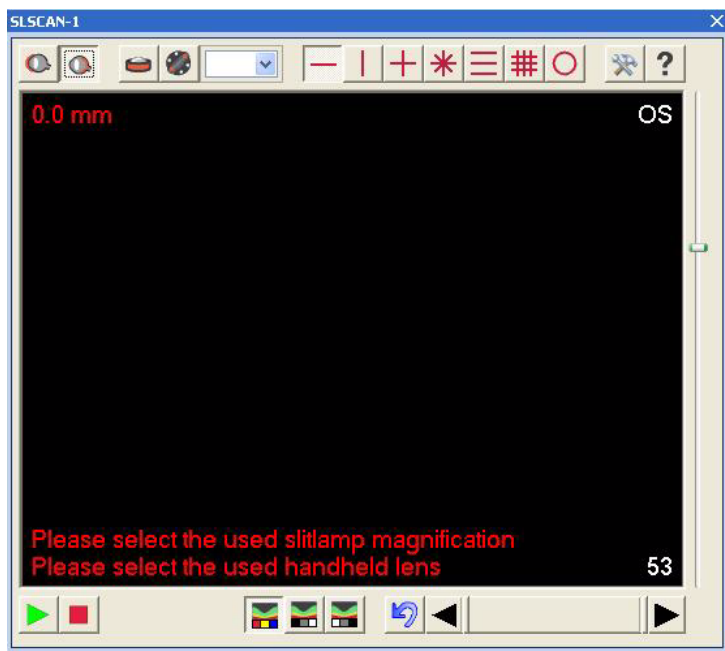
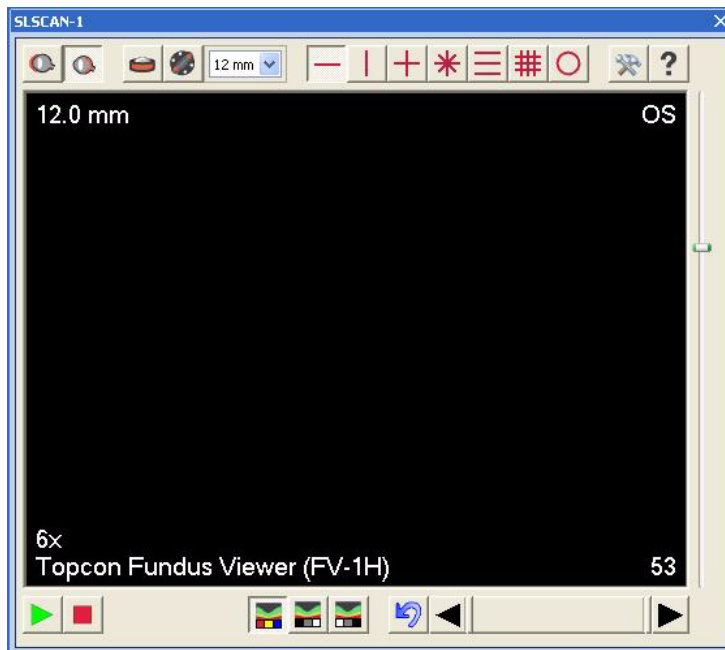
3.10.1 Information in the corners of the live view

In the corners there is information as described below



1. Scan length and pattern width (if applicable)
2. OD / OS
3. Magnification
4. Hand-held lens (if applicable)
5. Intensity of Aiming beam in percentage (0-100)

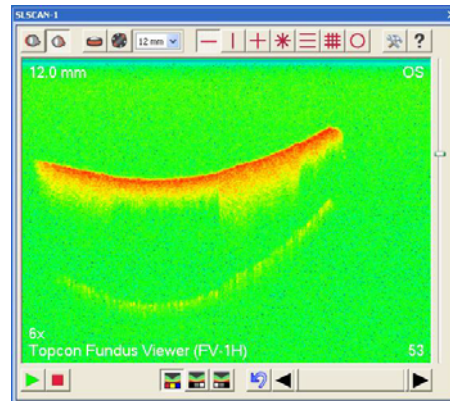
The color of the information can be red or white. Red means that the setting is 'unknown' and the system does not start.



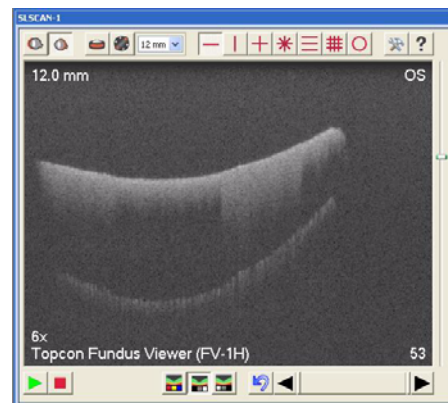
3.10.2 Color mode

The live image of the B-scans can be visualized in three different color modes:

1.  Color



2.  Black and White



3.  Inverted Black and White



3.10.3 Slider

The slider allows the user to adjust the lower and upper boundary of the displayed grayscale/color range on the scans. Using this slider, the user may enhance subtle details in the image.

The lower boundary sets the reflectivity threshold for the background noise. Any value lower than the lower boundary is set to black. The upper boundary sets the reflectivity threshold for the maximum brightness. Any value larger than the upper boundary is set to white.

3.11 Saving or deleting captured scans

Saving and deleting of captured scans can be done according to the user manual of IMAGEnet i-base.

3.12 Stop SL SCAN-1

There are two possible ways to stop the SL SCAN-1:

1. Use the stop button inside the acquisition dialog
2. Press the STANDBY button at the SL SCAN-1



4 TROUBLESHOOTING

Error	Cause	Solution
OCT_ERROR_DISCONNECTED	The USB connection of the device is disconnected.	Reattach the device to the Computer and restart ibase/ plugin.
OCT_ERROR_POWER_OFF	The power of the device has been switched off.	Switch the power back on.
OCT_ERROR_NOT_ENOUGH_MEMORY	There is not enough memory for proper operation.	Free memory by closing down other applications Consult the minimum PC requirement .
OCT_ERROR_BAD_RESPONSE	The SL SCAN-1 has reacted in a bad way either during initialization or during operation.	Restart the SL SCAN-1 Restart IMAGEnet i-base If the problem remains, please contact your local representative.
OCT_ERROR_NO_DATA	No data transportation over the USB connection.	Restart the SL SCAN-1 Restart IMAGEnet i-base If the problem remains, please contact your local representative.
OCT_ERROR_WRONG_REF_LIGHT	The reference light intensity cannot be set to an appropriate value during initialization or changes during operation of the SL SCAN-1.	Restart the SL SCAN-1 Restart IMAGEnet i-base If the problem remains, please contact your local representative.
OCT_ERROR_UNKNOWN	An unknown error occurred.	Please contact your local representative.
OCT_ERROR_UNSPECIFIED	Introduced by ibase if it gets an error not listed in this table by the SDK.	Please contact your local representative.

5 SPECIFICATIONS AND PERFORMANCE

5.1 Specifications SL SCAN-1

Description	Specification of the complete instrument
Axial resolution	8 - 9 μm in tissue
Scan rate	5000 A-Scans / sec
Lateral resolution	< 20 μm
Pixels image depth	512 pixels
Diopter range	+/- 20 D
Power @ cornea	< 700 μW
Scan Patterns	Horizontal line Vertical Line Cross Raster Grid Radial Circle
Scanning Range	2 - 12 mm Posterior
	6 - 15 mm Anterior (10x)
	2 - 4 mm Anterior (25x)
Light Source (SLD)	Wavelength 840nm
Imaging Segments	Posterior Segment
	Anterior Segment
Wavelength Aiming Beam	650 nm
Dimensions	Base Unit : W124 mm x H259 mm x L305 mm
	Scan Unit : W51 mm x H251 mm x L107 mm
	Power Unit : W89,5 mm x H45,5 mm x L188,9 mm
Weight	Base Unit : 7 kg
	Scan Unit : 1 kg
	Power Unit : 0.8 kg
Power Source	Voltage prim. 230 V 50/60 Hz Frequency 50 - 60 Hz
Power dissipation	Max. 80 W

5.2 Specifications PC

Recommended Specifications

Description	Specification of the complete instrument
Operating System	Microsoft Windows XP Professional (minimum SP2) Microsoft Windows VISTA Business (minimum SP1)
CPU	Pentium 4 3.0 GHz or higher
Memory	2 GB or higher
Connection	USB2.0 Full Speed
Screen resolution	1280 x 1024 (minimum 24 bit color quality)
Mouse	with Scroll Wheel

NOTE	The minimum requirements for IMAGEnet i-base are not recommended for the usage of the SL SCAN-1. The SL SCAN-1 does not meet the performance set by Topcon if PC are used with less specifications as listed in the above table.
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Please provide the following information when contacting us regarding questions about this instrument:

- Model name: SL SCAN-1
- Serial No.: This is printed on the rating product Labels of the Scan Unit and Base Unit.
- Period of use: Please inform us of the date of purchase.
- Defective condition: Please provide us with as much detail as possible on the problem.

Slitlamp Adapted OCT SL SCAN-1

SOFTWARE USER MANUAL
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Slitlamp Adapted OCT

SL SCAN-1

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