

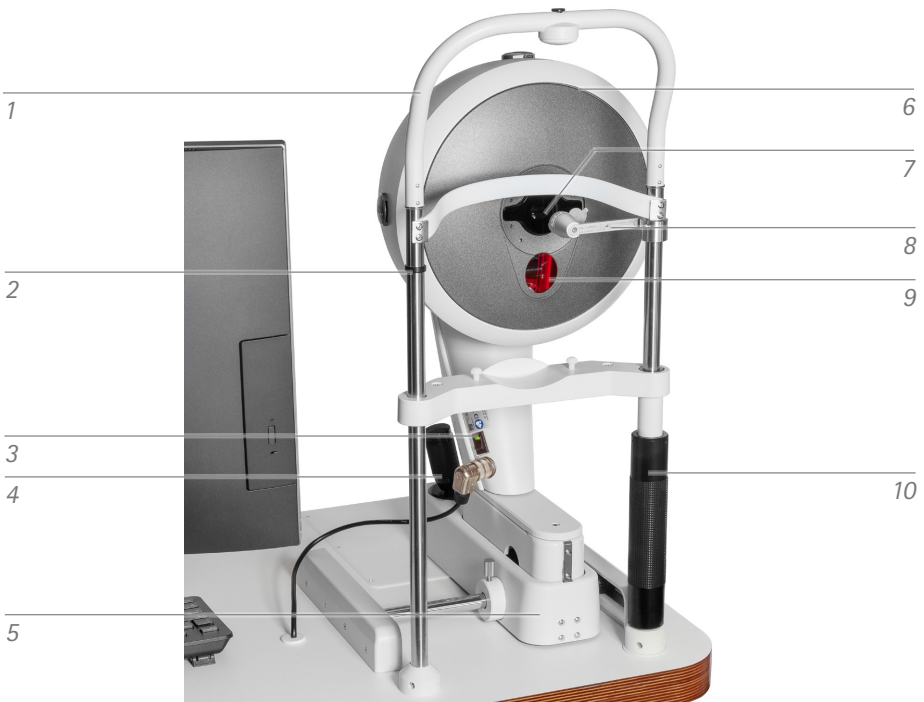
OCULUS | Pentacam® AXL



### Quick Guide

Performing measurements in a few steps

▶ Device components



*Pentacam® AXL on a lift table*

- |   |                               |    |  |
|---|-------------------------------|----|--|
| 1 | <i>Chin and forehead rest</i> | 6  | <i>Pentacam® AXL measuring head</i>                  |
| 2 | <i>Orientation point</i>      | 7  | <i>Iriskamera, with blue slit light and Dual PCI</i> |
| 3 | <i>On/off switch</i>          | 8  | <i>Test eye</i>                                      |
| 4 | <i>Joystick</i>               | 9  | <i>Scheimpflug camera</i>                            |
| 5 | <i>Cross-slide base</i>       | 10 | <i>Rotary handle for height adjustment</i>           |



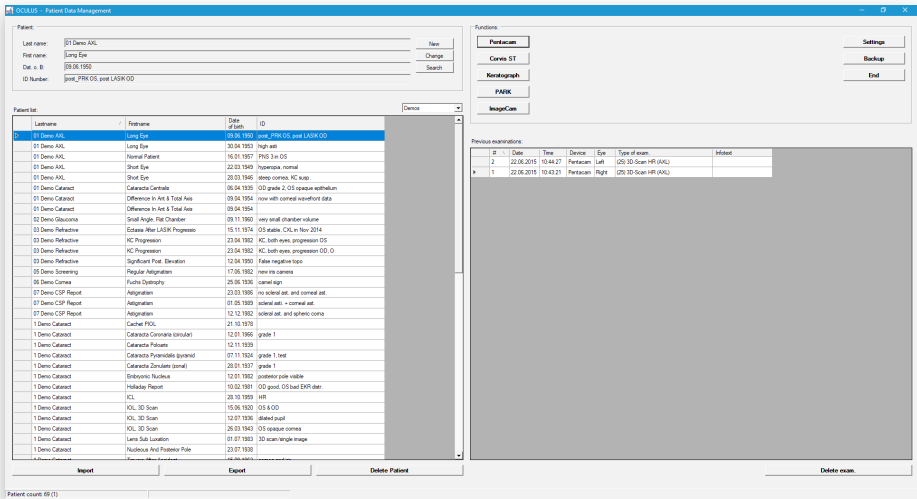
This quick guide is only meant as a supplement for operating the OCULUS Pentacam®. For more complete information about operating the OCULUS Pentacam®, please refer to the manual.

## Step 1

### ▶ Switch on the unit and the PC

- ▶ The OCULUS Patient Data Management can be started by clicking the Pentacam® icon.

The user interface of the "Patient Data Management" is displayed.



**OCULUS - Patient Data Management**

**Patient**

Last name: E1 Demo AKL New  
 First name: Lump Eye Change  
 Date of Birth: 28.08.1950 Search  
 ID Number: junit\_PNK05\_junit\_LASIK\_00

**Patients**

Lettername	Reference	Date of Birth	ID
E1 Demo AKL	Long Eye	03.06.1900	junit_PNK05_junit_LASIK00
E1 Demo AKL	Long Eye	20.04.1993	high wall
E1 Demo AKL	Normal Patient	16.01.1977	PKG 1 to 02
E1 Demo AKL	Short Eye	22.03.1949	hypermet. normal
E1 Demo AKL	Short Eye	20.03.1946	steep cornea, KC wavy
E1 Demo Cataract	Cataract Cataract	06.04.1939	OD grade 2, OD cataract membrane
E1 Demo Cataract	Difference In Ax & Total Ax	09.04.1954	now with corneal nonuniform data
E1 Demo Cataract	Difference In Ax & Total Ax	09.04.1954	
E1 Demo Glaucoma	Small Angle, Flat Chamber	09.11.1960	very small chamber volume
E1 Demo Refractive	Excess After LASIK Progress	15.11.1974	OS stable, CCL in Nov 2014
E1 Demo Refractive	KC Progression	23.04.1982	KC both eyes, progression OD
E1 Demo Refractive	KC Progression	23.04.1982	KC both eyes, progression OD, OI
E1 Demo Refractive	Significant Post. Elevation	13.04.1990	False negative topog
E1 Demo Screening	Regular Alignment	17.06.1962	near no cornea
E1 Demo Cornea	Family Corneopathy	26.06.1996	Central topog
E1 Demo CCF Report	Alignment	23.03.1996	no scleral ast. and normal ast.
E1 Demo CCF Report	Alignment	01.08.1999	scleral ast. - normal ast.
E1 Demo CCF Report	Alignment	12.12.1982	scleral ast. and spher. coma
1 Demo Cataract	Cache PKOL	21.09.1979	
1 Demo Cataract	Cataract Cornea (removed)	12.09.1966	grade 1
1 Demo Cataract	Cataract Cataract	12.11.1999	
1 Demo Cataract	Cataract Pterygia (removed)	07.11.1924	grade 1, treat
1 Demo Cataract	Cataract Zonular (removed)	20.09.1957	grade 1
1 Demo Cataract	Embryonic Nucleus	12.01.1982	posterior pole visible
1 Demo Cataract	Holladay Report	10.02.1991	OD good, OI bad EXPR data
1 Demo Cataract	ICI	28.10.1999	ICI
1 Demo Cataract	ICI, 3D Scan	16.06.1920	OS & OD
1 Demo Cataract	ICI, 3D Scan	12.07.1936	obscured pupil
1 Demo Cataract	ICI, 3D Scan	26.03.1943	OD posterior cornea
1 Demo Cataract	Lens Sub Location	01.07.1983	3D scan/angle image
1 Demo Cataract	Nucleus And Posterior Pole	23.07.1939	

**Functions**

Pentacam Settings  
 Cornea ST Backup  
 Keratograph End  
 PAKK  
 ImageCam

**Previous examinations**

#	Date	Time	Device	Eye	Type of exam	Patient
2	22.06.2015	10:44:27	Pentacam	Left	OD: 3D Scan PR (AKL)	
1	22.06.2015	10:43:31	Pentacam	Right	OD: 3D Scan PR (AKL)	

**Import** **Export** **Delete Patient** **Delete exam**

Patient count: 48 (1)

**Step 2a** ▶ **Selecting a patient**

Entering a new patient

- ▶ To create a new patient in the "Patient Data Management", click the [New] button.



Patient:

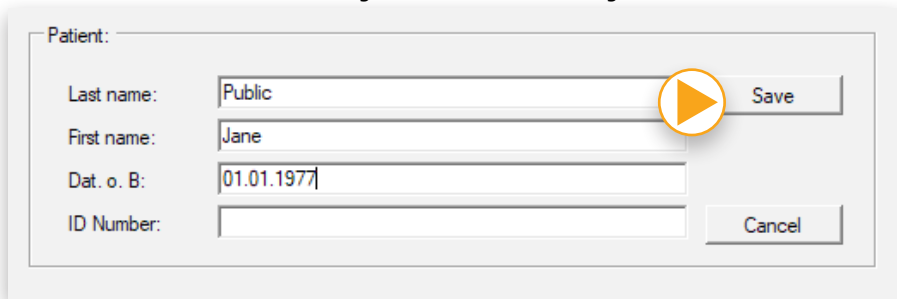
Last name:

First name:

Dat. o. B:

ID Number:

- ▶ Enter the patient's full last name, first name and date of birth in the patient window. You also have the option of entering an ID number or designation.



Patient:

Last name:

First name:

Dat. o. B:

ID Number:

- ▶ To save the data you entered, click the [Save] button. The patient you have just entered now appears in the patient list.

## Step 2b


## ▶ Selecting a patient

## Selecting an existing patient

- ▶ Choose the [Search] button to quickly find the patient you require in the list.
- ▶ Now enter the patient's name, the first letter of his or her name or ID number (if an ID number has already been entered) in the field that appears and confirm by choosing [Search].

Patient:

Last name:	<input type="text" value="Publ"/>		
First name:	<input type="text"/>		<input type="button" value="Search by csv"/>
Dat. o. B:	<input type="text" value="28.11.2018"/> ▼	<input type="text" value="28.11.2018"/> ▼	<input type="button" value="Quit Search"/>
ID Number:	<input type="text"/>	<input type="checkbox"/>	Extended



- ▶ Click the appropriate entry in the list to transfer that patient's name to the patient window. This also brings up a list of any previous examinations for that patient in the examination window (right column).

### Step 3

### ▶ Starting the Pentacam® program

- ▶ After selecting a patient, start the Pentacam® program by clicking on the [Pentacam] button.
- ▶ Alternatively, start the program by double-clicking on the selected patient's name.

The screenshot shows the OCULUS Patient Data Management software interface. The 'Patient' list on the left contains the following data:

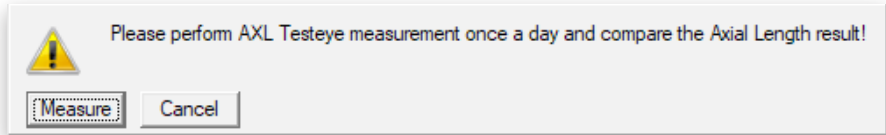
LastName	Firstname	Dem. ref. no.	ID
01 Demo ANL	Lung Eye	200201903	jeff_2199_OS_jeff_LASIK_OD
01 Demo ANL	Lung Eye	20041953	high ast
01 Demo ANL	Normal Patient	161011907	PHO 3m OS
01 Demo ANL	Short Eye	22031346	hypertense normal
01 Demo ANL	Short Eye	20131346	deep cornea KC wapo
01 Demo Cataract	Cataract Cornea	08041930	OS grade 2 OS nucleus minimum
01 Demo Cataract	Dilatation In Art & Total Ast	08041934	new with normal keratometry data
01 Demo Cataract	Dilatation In Art & Total Ast	09041934	
01 Demo Glaucoma	Small Angle, Flat Chamber	08111960	new small chamber volume
01 Demo Refractive	Keratometry	16111974	OS astige, OS in Nov 2014
01 Demo Refractive	KC Progression	23041982	KC both eyes, progression OS
01 Demo Refractive	KC Progression	23041982	KC both eyes, progression OD, O
01 Demo Refractive	Significant Fluct. Elevation	12041990	Fluct. negative topa
01 Demo Screening	Regular Refraction	17061982	new no camera
01 Demo Contact	Regular Screening	26061996	normal eye
01 Demo CSP Report	Refraction	23031996	no scleral ast. and normal ast.
01 Demo CSP Report	Refraction	01091989	normal ast. + normal ast.
01 Demo CSP Report	Refraction	12121982	normal ast. and kerato-conic
1 Demo Cataract	Cataract PLOL	21101978	
1 Demo Cataract	Cataract Cornea (normal)	12011996	grade 1
1 Demo Cataract	Cataract Cornea	12111939	
1 Demo Cataract	Cataract Pyramides (normal)	07111924	grade 1, test
1 Demo Cataract	Cataract Zinnien (normal)	28101937	grade 1
1 Demo Cataract	Bilateral Nucleus	12121982	borderline case visible
1 Demo Cataract	Holmium Report	10101981	OD good, OS bad EXPR date
1 Demo Cataract	KL	28101989	HR
1 Demo Cataract	KL, 3D Scan	16091920	OS 4.00D
1 Demo Cataract	KL, 3D Scan	12071936	abaxial pupil
1 Demo Cataract	KL, 3D Scan	26031943	OS nucleus cornea
1 Demo Cataract	Lens Sub location	01071982	3D scan/edge image
1 Demo Cataract	Nucleus And Posterior Pole	23071938	no nucleus

The 'Previous examinations' table shows the following data:

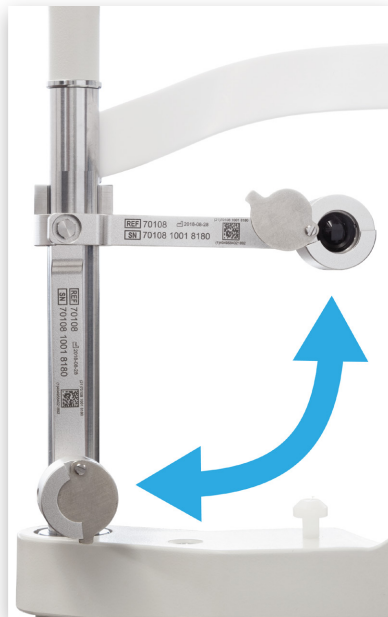
Ref. no.	Date	Time	Device	Eye	Type of exam.	Index
2	22.06.2015	10:44:27	Pentacam	Left	OS 3D-Scan HR (AK)	
1	22.06.2015	10:43:21	Pentacam	Right	OS 3D-Scan HR (AK)	

### Step 4a ▶ Measuring the test eye

Once every morning or after 24 h continuous operation, the software requests you to perform a test eye measurement.



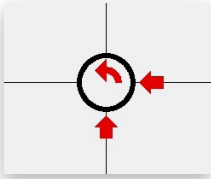
- ▶ Shift the test eye in front of the Pentacam®.
- ▶ Open the protective cover from the lens.



- ▶ Click [Measure].

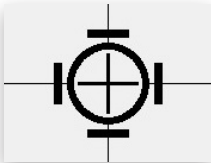
## Step 4b ▶ Measuring the test eye

- ▶ Fine adjustments can be performed with the help of the adjustment window. Move the joystick towards the provided directions (red arrows).



### Example:

You need to move the joystick to the left, front and turn it anticlockwise.



- ▶ When the eye is in focus, the adjustment window will show a black cross in the centre of the circle surrounded by four black bars.

- ▶ Click [Start Scan], for starting the scan manually.
- ▶ Match the measured data with the data on your test eye.

The screenshot displays the software interface with the following data:

Serial	Axial Length SNRS	OS	Eye Status
1	24.481 mm	[231 T	OK

	Axial Length SNRS	x [mm]	y [mm]	z [mm]
1	24.485 mm	[-188.7	[-0.864	[-0.818
2	24.481 mm	[-229.8	[-0.843	[-0.819
3	24.480 mm	[-189.3	[-0.842	[-0.820
4	24.479 mm	[-215.6	[-0.858	[-0.825
5	24.483 mm	[-175.6	[-0.863	[-0.825
6	24.479 mm	[-231 T	[-0.870	[-0.823

**Result:** Axial Length: 24.481 mm

Comparison with test eye: 24.48 mm ± 0.05 mm



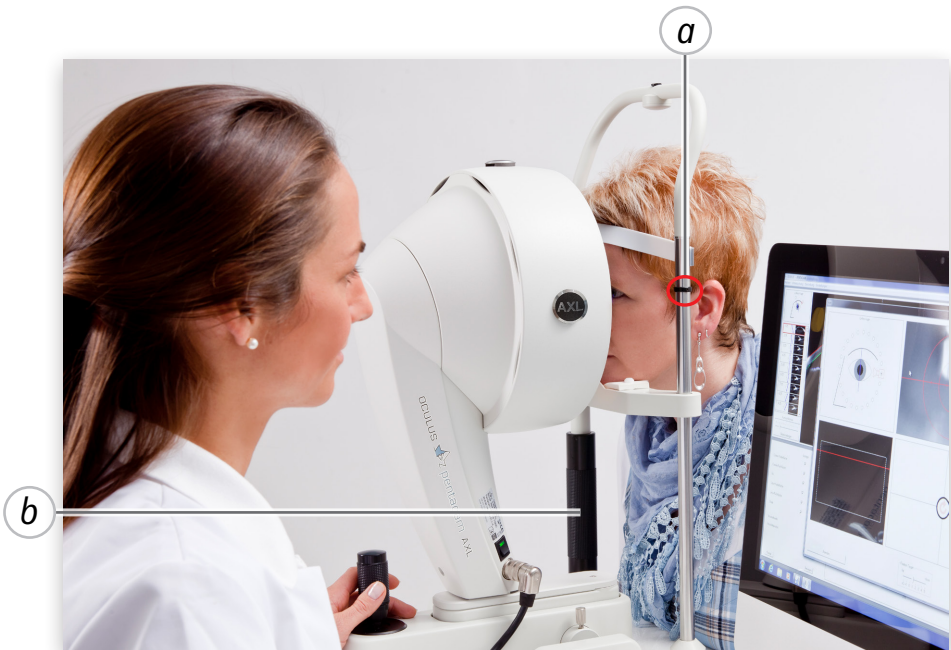
If the difference between the initial value and the current value lies outside the tolerance range, please contact our service or your marketing authorisation holder.

## Schritt 5 ▶ Positioning the patient

- ▶ Adjust the height of the table.
- ▶ Ask the patient to place his or her head on the chin and forehead rest.

The black ring marking between the chin rest and the forehead rest (a) should be used for height estimation of the patient's eye.

- ▶ Adjust the patient's eye level using the twist grip (b).
- The patient is positioned correctly when chin and forehead touch the rests and the eyes are level with the marking.
- ▶ Instruct the patient to focus on the red light during the entire measurement.



## Step 6

### ▶ Darkening the room

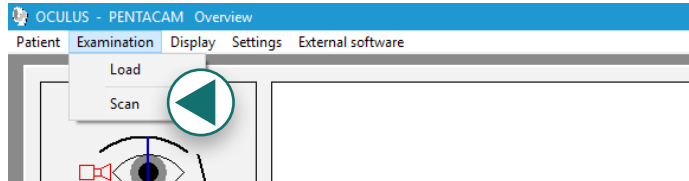
- ▶ If you do not wish to turn down or switch off the lights in the examination room, you need to cover the patient and the Pentacam® using the dark cloth included with the Pentacam®. This is necessary in order to ensure a correct examination.



## Step 7

### ► Prepare the measure

- Choose the tab [Examination] and click [Scan] to switch into the scan mode.



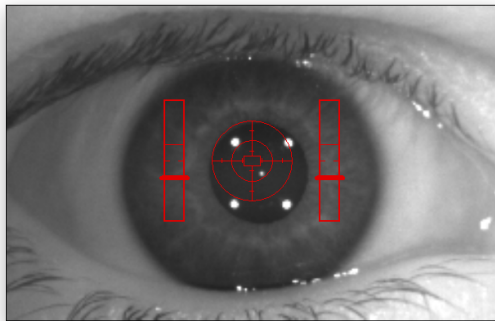
- Check the settings (e.g. number of pictures) on the right side of the scan menu. Change these settings if necessary.

Check that "Request 6x Alignments" is activated for the axial length measurement.

## Step 8

### ▶ Start Measurement

- ▶ Ask the patient to open the eye wide and fixate on the red point.
- ▶ Move the Pentacam's® cross slide towards the patient until the four infrared LEDs are clearly to see at the image (white dots). The preliminary position of the camera is achieved once the central corneal reflex is centered in the target cross.



*Pupil picture*

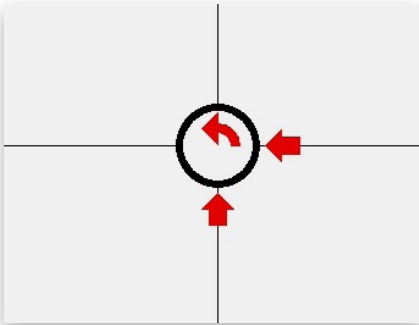
What to say to the patient before taking the measurement:

- ▶ "Look at the red point."

## Step 9

### ▶ Take the measurement

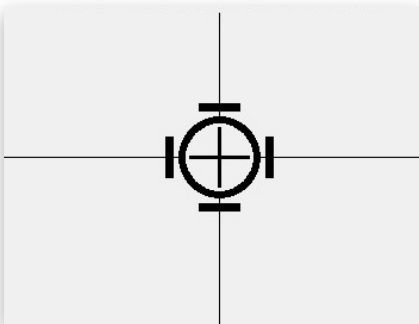
- ▶ Fine adjustments can be performed with the help of the adjustment window. Move the joystick towards the provided directions. (Red arrows).



#### Example:

You need to move the joystick to the left, front and turn it anticlockwise.

- ▶ When the eye is in focus, the adjustment window will show a black cross in the centre of the circle surrounded by four black bars. In this case the Pentacam will start the measurement automatically.



#### What to say to the patient right before you take the measurement:

- ▶ *"Open your eyes up wide and keep them opened while I take the measurement"*
- ▶ *"Blink once more – now don't blink – the measurement is starting – now."*

- ▶ If you are taking the measurement manually:  
Take the measurement by clicking [Start Scan] or by pressing the space bar.

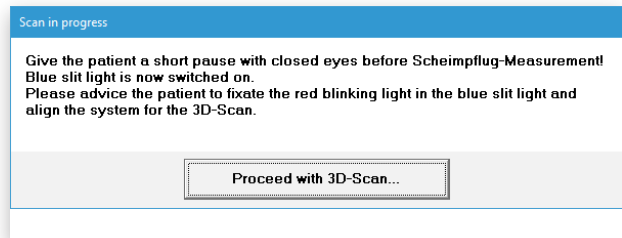


For manual capture release, it might be that this measurement cannot be reproduced!

## Step 10 ▶ Performing a Scheimpflug measurement

After the axial length measurement you will be requested to continue with Scheimpflug measurement.

- ▶ Follow the given instructions.

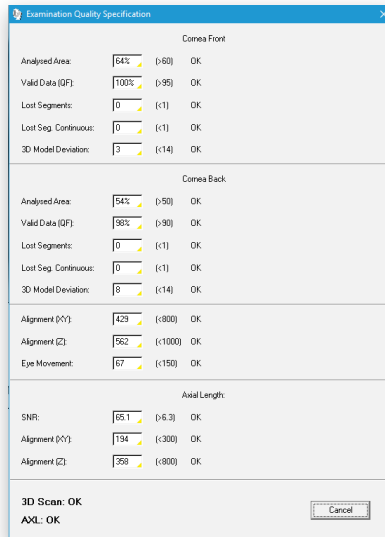


- ▶ Start the measurement by clicking the button [Proceed with 3D-Scan...] or by pushing the space bar.
- ▶ Repeat step 9.

## Step 11

### ▶ Check the measurement results

- ▶ Check the measurement result on the basis of the quality specification in the "QS" tab – it is located in the upper third of the right side in the Overview display.



Cornea Front		
Analysed Area:	64%	[>60] OK
Valid Data (DF):	100%	[>95] OK
Lost Segments:	0	[<1] OK
Lost Seg. Continuous:	0	[<1] OK
3D Model Deviation:	3	[<14] OK
Cornea Back		
Analysed Area:	54%	[>50] OK
Valid Data (DF):	98%	[>90] OK
Lost Segments:	0	[<1] OK
Lost Seg. Continuous:	0	[<1] OK
3D Model Deviation:	8	[<14] OK
Alignment (X)		
Alignment (X):	429	[<800] OK
Alignment (Z):	562	[<1000] OK
Eye Movement:	67	[<150] OK
Axial Length		
SNR:	65.1	[>6.3] OK
Alignment (X):	194	[<300] OK
Alignment (Z):	358	[<800] OK

3D Scan: OK  
AxL: OK

If an OK appears in the "QS" tab, the measurement is proper and repeatable.

- ▶ If the background of the "QS" tab is yellow, open the dialogue box by clicking on the tab and check the results of the examination. In case of doubt, repeat the measurement.
- ▶ If the background of the "QS" tab is red, repeat the measurement.

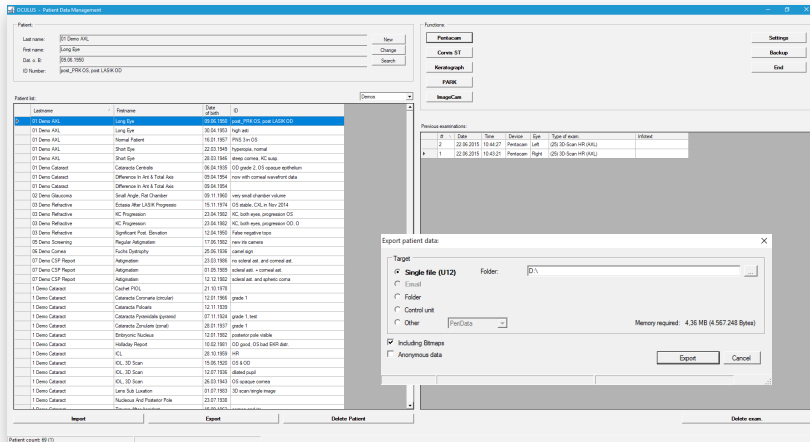


Regardless of the measurement quality, the examination data is being saved!

## Step 12

### ▶ Transfer measurement results

- ▶ You have the option export data from a patient or a single examination.
- ▶ Select the required patient in the "Patient Data Management".
- ▶ In case you want to export single examinations you need to select the particular examinations.
- ▶ Then click [Export].



- ▶ Chose „Single file (U12)“ and specify a file name and destination.
- ▶ Make sure that "Including Bitmaps" is checked.
- ▶ Confirm by clicking [Export].
- ▶ Once the data has been exported and saved to the hard drive, you can attach it to an email or save it to an external data storage medium.
- ▶ The data can only be opened on another PC if the recipient is using the same software version and has obtained a license.



To make anonymous the patient data, activate the checkbox [Anonymous data].





OCULUS is certified in acc. with  
DIN EN ISO 13485

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