

Instructions for use

SLIDEVIEW

VS200

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Original instructions

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Contents

1 About this manual	7
1.1 Notes on qualifications	7
1.2 Intended use	7
1.3 Other applicable documents	8
1.4 Symbols in this documentation	8
2 Safety	9
2.1 Categories and symbols in the safety instructions	9
2.2 Caution labels	9
2.3 Caution labels on the product	9
2.4 General safety instructions	10
2.5 Safety instructions for the laser	13
2.6 Safety instructions for X-Cite Turbo and X-Cite Xylis	13
3 Hinweise zum Aufstellen	14
3.1 Betriebs- und Lagerbedingungen	14
4 Tools and accessories	16
5 Scope of supply	17
6 System diagram	20
6.1 Available fluorescence components	20
7 Trays	22
7.1 Tray description	22
7.2 VS200 Tray types	22
8 Specifications	24
9 Unboxing	26
9.1 VS200 Scanner	26
9.1.1 Mounting of handles - VS200 scanner	26
9.2 Transportation locks for the VS200 scanner	26
9.2.1 Removing transportation lock from stage	27
9.2.2 Removing transportation lock from transmitted light condenser (BX3-UCD8A)	28
9.3 VS200 Loader	30
9.3.1 VS200 Trays	32
9.3.2 PC and monitor	32
9.4 VS200 loader transportation locks	32
9.4.1 Removing transportation lock from VS200 loader's tray hotel	33
9.4.2 Removing transportation lock from SCARA robot arm	34

9.4.3 Removing transportation lock from SCARA robot arm's counterweight	35
10 Mounting of components	37
10.1 Scanner	37
10.1.1 Objectives	37
10.1.2 Immersion Objectives	38
10.1.3 Phase Contrast (PH) objectives	39
11 Mounting fluorescence components	40
11.1 IX3-RFACA and IX3-RFALFE	40
11.2 Fluorescence filter wheels or camera adapter for monochrome camera	45
11.2.1 U-FFWR (Motorized fast reflected light filter wheel)	45
11.2.2 Add or replace filter (U-FFWR)	47
11.2.3 U-FFWO T3 (Motorized fast observation filter wheel)	49
11.2.4 Add or replace filter (U-FFWO)	51
11.2.5 TV 1.0x adapter	52
11.3 Monochrome camera	52
11.3.1 Orientation of the monochrome camera	53
11.4 X-Cite adapter	56
11.5 4x Objective	57
11.6 LED light source	57
11.7 Filter set	58
11.7.1 U-FF filter cube (IX3)	58
11.7.2 Add or replace filter cube (IX3)	59
11.7.3 U-FDICT filter cube	60
11.7.4 X-Cite Turbo	61
12 Assembly of the housing for scanner	62
12.1 Left panel	62
12.2 Right Panel	64
12.3 Back panel	65
12.4 Top panel	66
13 Cabling	70
14 Assembly of the loader housing	72
14.1 Top panel	72
14.2 Back panel	72
14.3 Front panels	73
15 Verbindung VS200 Scanner und VS200 Loader	75
15.1 Mechanical Connection VS200 scanner and VS200 loader	75

16 PC operating system language	77
17 VS200 ASW software setup	78
18 VS200 device configuration	85
18.1 Activate the motorized polarizer	86
18.2 Activate the VS200 liquid dispenser	86
18.3 Device settings - objectives	87
18.4 Device settings - filter	88
18.5 Manual device configuration	89
18.5.1 ORCA monochrome camera	90
18.6 Device customization	90
18.6.1 ORCA camera adjustments	91
18.6.2 Setup phase contrast (PH) observation method	92
18.6.3 Setup polarization (Pol) observation method	94
18.6.4 Create or adjust an observation method	95
18.7 VS200 LED lamp voltages	97
18.7.1 Orca Flash 4.0 voltages (%)	97
18.7.2 Orca Fusion voltages (%)	97
18.7.3 VS-304M voltages (%)	98
18.7.4 VS-264C voltages (%)	98
19 How to insert a slide into a tray	99
19.1 How to insert a tray into the VS200 scanner	99
19.2 Insert a tray into the VS200 loader	100
20 Calibrate VS200 using the Olympus Calibration Slide	101
20.1 Stage limits - Z Axis	103
20.2 Camera adapter calibration for iDS (VS-264C) camera	106
20.3 Camera-To-Stage Rotation	110
20.4 XY Objective Shift / Parfocality	112
20.5 Shading Correction (Brightfield)	115
20.6 Shading correction of the label area	123
20.6.1 Preparation of calibration slide	123
20.6.2 Shading correction for polarization (Pol)	131
20.7 Magnification Test Scan	136
21 Additional calibrations for a fluorescence system	138
21.1 Camera adapter	139
21.1.1 Camera adapter U-FFWO T3	139
21.2 Camera-To-Stage Rotation	144
21.3 Camera shift	146

21.4 Lens Correction	150
21.5 Shading correction BFMono	153
21.6 Magnification Test Scan	158
21.7 Shading correction for fluorescence observation methods	160
21.8 Shading correction for darkfield (DFMono)	164
21.9 Shading correction for PhaseContrast (PH)	167
21.10 Channel-XY-Shift	171
22 Cleaning the system	174
22.1 Cleaning the scanner	174
22.2 Cleaning the loader	174
22.3 Cleaning the trays	175
22.4 Cleaning the X-Cite Turbo	175
22.5 Cleaning the immersion objective	175
23 Additional software installation	178
23.1 OlyVIA	178
23.2 VS200 ASW Desktop	178
23.3 NetImage Server SQL (NIS-SQL) and Webinterface	178
24 Troubleshooting	179
24.1 Hardware not available	179
24.2 "No camera" error	179
24.3 Tray not active	179
24.4 Image too bright	180
24.5 Setting the Koehler illumination	180
25 Proper selection of the power supply cord	186
26 Declarations of conformity and disposal	189
26.1 CE Conformity (Europe)	189
26.2 WEEE declaration (Europe)	189
26.3 RoHS Conformity (Europe)	189
26.4 FCC conformity (USA)	189
26.5 For Korea only	190
26.6 China RoHS conformity (China)	190
26.7 RFID	190
26.7.1 RFID (Korea)	190
26.7.2 RFID (USA)	190
26.7.3 RFID (Canada)	191
26.7.4 RFID (Taiwan)	191
27 Support	192

1 About this manual

This manual for the VS200 system is for Olympus technicians as well as users of the VS200 system who have been trained by Olympus. The manual contains important information on how to operate the VS200 system safely and correctly.

In addition, this manual describes how to unbox and install the system as well as how to install further components. These tasks must expressly only be performed by Olympus. As a user you are not allowed to unbox or install the VS200 system by yourself!

To ensure the safety, obtain optimum performance and to familiarize yourself fully with the use of this product, study this manual thoroughly before installing this product, and always keep this manual at hand when operating this product.

Retain this instruction manual in an easily accessible place near the work area for future reference.



Installing and configuring a liquid dispenser, and upgrading to a VS200 loader are not in the scope of this document. These must only be installed and adjusted by technical service of Olympus.

1.1 Notes on qualifications

Olympus personnel	Instructions for tasks that must only be performed by Olympus are identified with the following note:
	The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

1.2 Intended use

The system is intended to be used for the acquisition of virtual slide images. The system is intended to be used for research only.

If the VS200 system is used in a manner not specified by this manual, the safety of the user may be at risk. In addition, the VS200 system may also be damaged. Always use the VS200 system according to this instruction manual.

Olympus Soft Imaging Solutions GmbH takes no responsibility for damaged caused by unintended use.

Foreseeable misuse

The system is not intended to be used for primary diagnosis.

1.3 Other applicable documents

Familiarize yourself with all of the other manuals for the components of the system. Take special note of the safety instructions they contain.

1.4 Symbols in this documentation



Tools required for performing the steps



Preconditions for the subsequent steps

2 Safety

If the product is used in a manner not specified by this manual, the safety of the user may be imperiled. In addition, the product may also be damaged. Always use the product as outlined in this instruction manual.

2.1 Categories and symbols in the safety instructions

The safety instructions in this manual use symbols and keywords that are divided into the following categories:



CAUTION

This warning sign and the word **CAUTION** indicate dangerous situations that can lead to minor injury if ignored.



ATTENTION

The exclamation mark and the word **ATTENTION** indicate situations where irreparable damage to the product can occur if ignored.

Useful tips and important information



This symbol indicates useful notes, tips and important information.

2.2 Caution labels



Indicates a non-specific general hazard.



This warning sign indicates that there is a crush hazard.

2.3 Caution labels on the product

Caution labels have been placed at positions where special care is required when handling and operating the system. Always pay attention to the caution labels.



CAUTION

Moving components can cause injury

Im Inneren des VS200 Systems verfahren Komponenten. Gaps open and close. Hands and fingers can get crushed.

- Sobald das System mit der Stromversorgung verbunden ist, Haare, Finger, Hände und andere Körperteile sowie Kleidung und Gegenstände aus dem Inneren des VS200 Systems fernhalten.

Position of caution labels		
		U-FFWO
		Loader
		Im Bereich des Mikroskoptisches
		Nosepiece
		Flap door
		Flap door motor

2.4 General safety instructions

- » Do not plug anything into or unplug anything from the ports when the system is connected to the power supply.
- » The system is not intended to be used for general microscopy tasks.
- » No guarantee is provided on an image file. For example, even if the following state is generated attributable to an operation error of an observer, malfunction of the device, a system failure including a potential one, or the like, or at the time of normal operation or normal movement, it will not be possible to perform image restoration or damage compensation.
 1. Abnormal state of an image
 2. Abnormal state of file property such as a file name and file date and time
 3. Disappearance of an image
- » Confirm, edit or save the image for backup through care of the observer. To be noted is that the electronic recording media such as USB memory, HDD and DVD-R have retention lives in general and there may be the case that a file saved may disappear in several years.
- » Further, there is no authenticity or tamper-proof characteristic.
- » Prevent from strong vibrations as they can impair the image quality.
- » Regarding to 3-axes control unit for scanning stages and motorised focus drives,
 1. Item caution for use
 2. Installation prevent from strong vibrations and risk of explosion
 3. Temperature prevent from direct sunlight or strong heat sources
 4. Humidity prevent from splash water and moisture

5. Radiation prevent from magnetic or electromagnetic sources in close proximity. Prevent from radioactive contamination
6. Chemicals/ toxic substances prevent from substances that are corrosive, potentially infectious, toxic or otherwise hazardous to health

» Regarding Monitor

1. Do not use this product near water.
2. Do not place this product on an unstable cart, stand or table. If the product falls, it could be seriously damaged.
3. Slots and openings are provided for ventilation to ensure reliable operation of the product and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug or other similar surface. This product should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.
4. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind onto or into the product.

» The system must not be used for primary diagnosis.

» Possible data loss or invalid hardware states when forcing application to shut-down. The application has no means of resisting a "forced shutdown" (e.g. due to a forced "Windows Update" or application kill via the "Task Manager", power loss, or a computer reboot). The user is generally required to not initiate such a forced shutdown. If the application is forced to shut down without being properly closed anyway, the following problems may occur:

» The system may not be able to save and restore the current status of the application (including any non-saved states / images / settings).

» It may be necessary for a service technician to check the system to make it operational again.

» Photobleaching possible

The system has a fluorescence light source with high light intensity. Photosensitive samples might be photo-bleached if they exposed to high-intensity light for long times (e.g. 60 s). This can happen when the sample is being viewed in live mode or if it is scanned repeatedly (e.g. 10 times) on the specimen sites that are auto-focused a lot of times. The photobleaching is often only faint and only visible if the 16 bit display limits are set very narrow. In order to prevent this, it can be useful to create alternative observation methods with reduced light intensity in order to only use as much light as necessary and avoid "overloading" the sample with excitation light.

» Shading / uneven light intensity

For specimens with very sparse samples with a lot of empty background and rather small fluorescence emittance (e.g. FISH samples), it can occur that images acquired with Fluorescence illumination show a variance in background illumination ("shading").

» If the product is being used in a network environment, note the following points.

- » Make sure that the network has appropriate virus protection.
- » The installation of operating system service packs, security patches or third party software updates (including runtime libraries) can cause malfunctions.
- » If anti-virus software is running while you are acquiring images, it can lead to the loss of individual acquisitions. It can also slow down the acquisition process or even cause it to be aborted altogether.

2.5 Safety instructions for the laser

1. The loader uses a laser sensor. Never remove the warning and caution labels on the product. The semiconductor laser for loader incorporated in this product is designated as a product of the following class.

CLASS 1 LASER PRODUCT(IEC60825-1:2007 / IEC608251:2014)

This product complies with 21 CFR 1040. 10 and 1040. 11 except for deviations pursuant to Laser Notice No. 56, dated June 24, 2007.

2. Never attempt to remove the cover using a tool. There is a risk of exposure to the internal strong laser beam as well as other malfunction or failure.
3. Do not look into the light source either directly or indirectly. Otherwise, eye injuries may occur.

2.6 Safety instructions for X-Cite Turbo and X-Cite Xylis

- ✓ The X-Cite Turbo light source is not available in all countries.

Follow the safety precautions at all times during operation and maintenance of this product. Non-observance may result in eye injury or damage to the system.



CAUTION
Risk of injury to the eyes

- » Do not look at operating lamp/LED as it can emit UV light.
- » Never look into the light emitting end of the light guide. The light could severely damage the eye if the light is observed directly.

- » Always make sure the liquid light guide and X-Cite adapter are securely attached to the VS200 system. This will minimize the risk of exposure to the UV light.
- » If the light source has a malfunction please contact Olympus or Excelitas customer support. If the light source is serviced always make sure that the power cord is disconnected.
- » Place the unit onto a hard, stable surface and make sure the ventilation openings are not covered by something.

3 Hinweise zum Aufstellen

- » A fully equipped VS200 system weighs approx. 190 kg. Consider this weight when selecting the work surface. Beachten Sie die Angaben zum Gewicht, wenn Sie das VS200 System bzw. die Komponenten anheben. See [Specifications auf Seite 24](#).
- » Die Aufstellfläche muss für eine Tragfähigkeit von mindestens 190 kg ausgelegt sein.
- » Place the VS200 system on a sturdy level table or bench, taking care not to block the ventilation slots of the scanner and loader.
- » When setting up the VS200 system, ensure that there is a minimum distance of 30 cm from the wall and 20 cm from other devices.
- » The devices must only be moved using the designated handles to avoid damages on the device and personal injuries.
- » The system should not be repositioned by the end user. If the system has to be repositioned an Olympus sales representative has to be contacted first.

3.1 Betriebs- und Lagerbedingungen

Positioning the system	Only use the system indoors and in a laboratory or laboratory-like environment
Elevation	2000m maximum
Ambient temperature	The maximum permissible range for the ambient temperature during operation of the VS200 system is 12 to 28°C.
Humidity	The maximum permissible humidity during operation of the VS200 system is 80% for temperatures up to 31°C (88°F, condensation free) decreasing linearly through 70% at 34°C (93°F) and 60% at 37°C (99°F).
Power supply voltage fluctuation	The power supply should not fluctuate by more than 10% of the nominal voltage.
Pollution degree	2 (in accordance with IEC60664)
Installation category (over-voltage category)	II (in accordance with IEC60664)

Space required for the system

VS200 System without loader		
	Without fluorescence	With fluorescence
Height	530 mm	885 mm
Area of work surface (table)	1500 mm x 800 mm	1500 mm x 800 mm

VS200 System with loader		
	Without fluorescence	With fluorescence
Height	885 mm	885 mm
Area of work surface (table)	1800 mm x 800 mm	1800 mm x 800 mm

Storage conditions

The maximum permissible range for the ambient temperature for storage of the VS200 system is -25 to 55°C.

The maximum permissible relative humidity range for storage is 10% to 95%.

The maximum permissible temperature change rate for storage is 30°C/h.

The maximum permissible atmospheric pressure for storage is 70 to 106 kPa.

4 Tools and accessories

- » 2,5 mm, 3 mm with ball end, 4 mm, 5 mm hex keys

5 Scope of supply

VS200 Single Tray and VS200 Multi Tray Loader

1st pallet	VS200 base unit
2nd pallet	Housing panel left
	Housing panel right (different variant for single tray and multi tray loader)
	Housing panel back
	Housing back panel cover
	Housing panel top front
	Housing panel top back
	Housing beam splitter cover
	4 handles to carry the system
	PLN2x
	UPLANXAPO20x
	1 1x3 inch tray
	VS200 standard computer with mouse and keyboard
	HP TFT 27 inch
	Instruction manual
	Calibration slide v2.0
Additional box	Power supply (not available in all countries)
	Optional hardware

VS200 loader

Pallet	VS200 loader
	Housing panel back
	Housing panel top
	Housing back panel cover
	4 1x4 inch tray
	Instruction manual

Fluorescence kit A

Box	IX3-RFACA
	IX3-RFALFE
	UPFLN4x
	U-FF filter cube
	TV1XC
	U-FFWR
	X-Cite Xylis

Fluorescence kit B

Box	IX3-RFACA
	IX3-RFALFE
	UPFLN4x
	U-FF filter cube
	2x Black-out filter
	1x Glas filter
	U-FFWO T3
	U-FFWR
	X-Cite Xylis

Fluorescence kit C

✓ The Fluorescence kit C is not available in all countries.

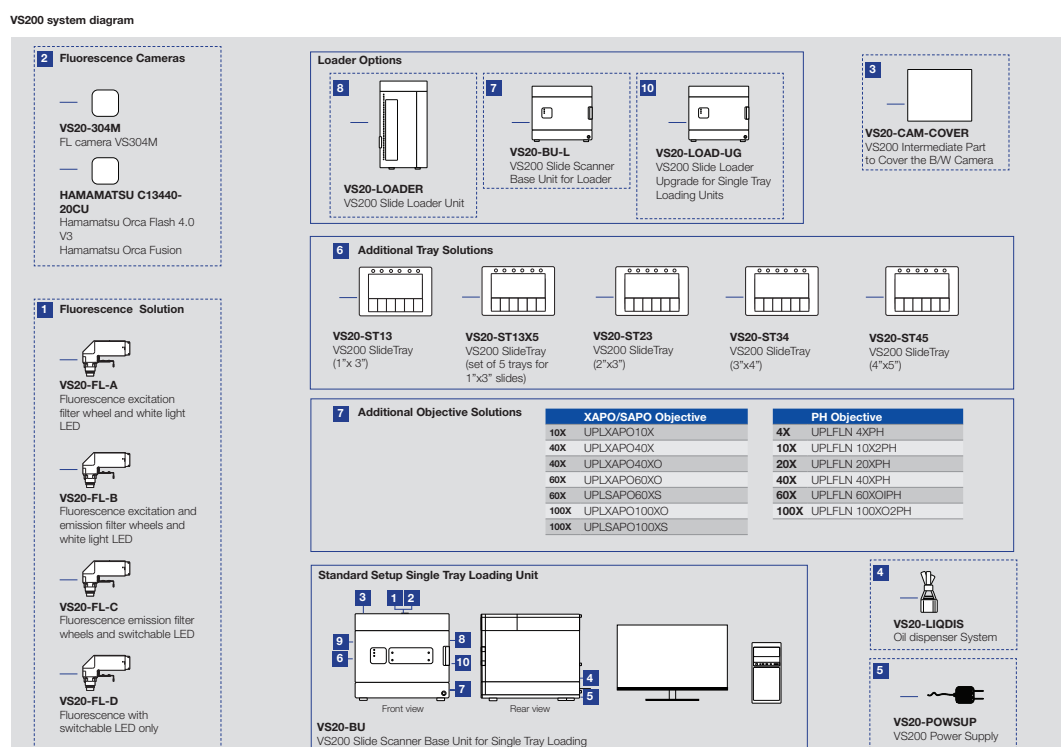
Box	IX3-RFACA
	IX3-RFALFE
	UPFLN4x
	U-FF filter cube
	2x Black-out filter
	1x Glas filter
	U-FFWO T3
	X-Cite Turbo

Fluorescence kit D

✓ The Fluorescence kit D is not available in all countries.

Box	IX3-RFACA
	IX3-RFALFE
	UPFLN4x
	U-FF filter cube
	TV1XC
	X-Cite Turbo

6 System diagram



6.1 Available fluorescence components

The VS200 system can be ordered with four different fluorescence sets. Each set contains a basic configuration plus individual components. Filter sets and cameras are not part of the configuration.

Remark: Configuration C and D are not available in all countries.

Basic configuration				
Component	A	B	C	D
IX3-RFACA	X	X	X	X
IX3-RFALFE	X	X	X	X
UPFLN4X objective	X	X	X	X
U-FF, filter cube (empty)	X	X	X	X

Individual components				
-----------------------	--	--	--	--

Component	A	B	C	D
TV1XC	X			X
U-FFWR	X	X		
U-FFWO T3		X	X	
Xcite Xylis (IR), whitelight LED	X	X		
Xcite Turbo, switchable LED			X	X

Optional - Filter sets

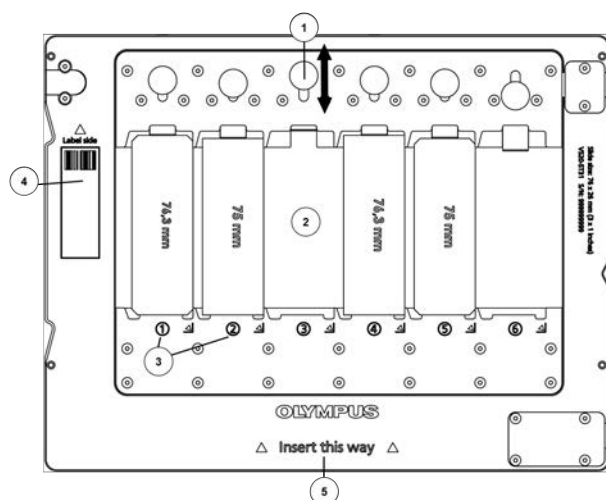
Component	A	B	C	D
Recommended filter set	single-band exciter multi-band emit- ter	single-band exciter single-band emit- ter	single-band exciter single-band emit- ter	multi-band emit- ter

Monochrome cameras

Component	A	B	C	D
VS304M	0	0	0	0
Orca Flash 4.0		0	0	0
ORCA Fusion VS200		0	0	0

7 Trays

7.1 Tray description

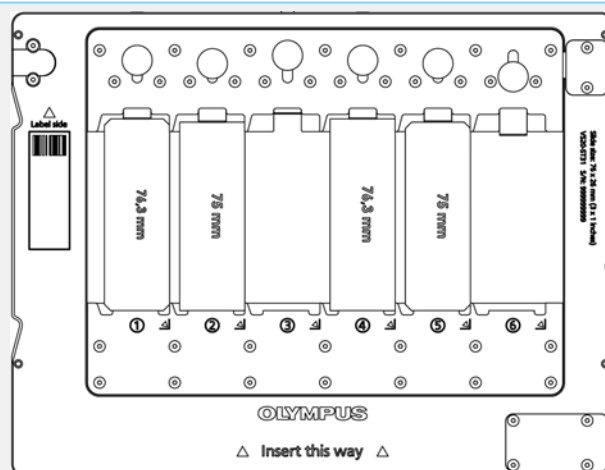


- | | |
|-----|---|
| (1) | Button to open/close the spring for inserting a slide |
| (2) | Slide pocket |
| (3) | Slide position |
| (4) | Indicator for label area |
| (5) | Indicator for tray insertion |

7.2 VS200 Tray types

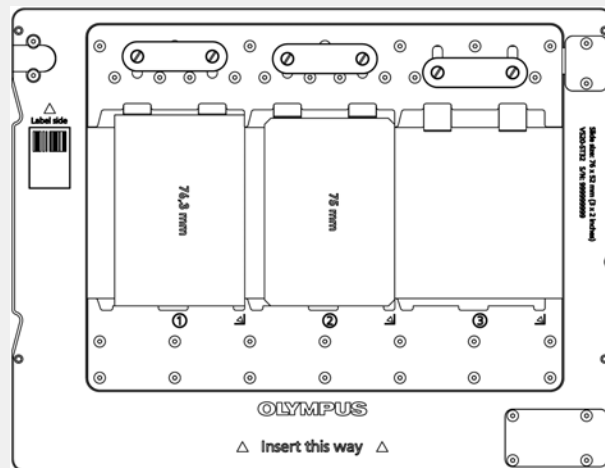
The VS200 systems can be equipped with four different tray types for different slide formats. All trays can be either used with the VS200 ST (Single Tray Load) system or VS200 MTL (Multi Tray Loader) system.

By default every VS200 system is equipped with at least one tray for 6 1/3 inch slides (76 × 26 mm, DIN ISO 8037-1).

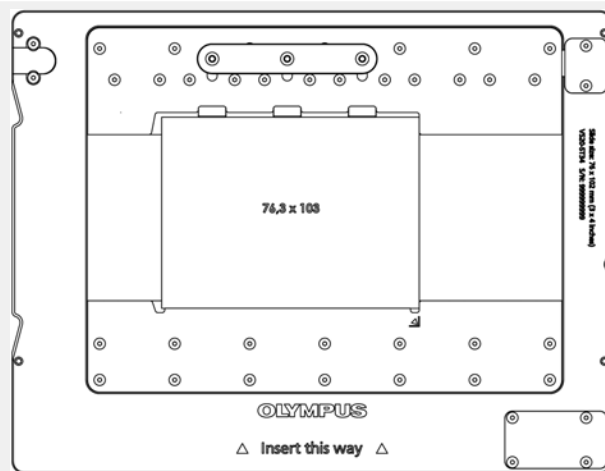


Additional tray types

3 slides in 2x3 inch (76 x 52 mm)



1 slide in 3x4 inch (76,3 x 103 mm)



1 slide in 4x5 inch (76,3 x 128 mm)

Add image

8 Specifications

		VS200 Single Tray Load (STL)	VS200 Multi Tray Loader (MTL)
Intended specimen	Observable specimen	Glass slide with cover glass	
	Size of glass slide	Standard tray: width: 25 mm – 26.5 mm, length: 75 mm – 76.5 mm, thickness: 0.9 mm - 1.2 mm Optional trays: 1) Width: 51 mm – 53 mm, length: 75 mm – 76.5 mm, thickness: 0.9 mm - 1.2 mm 2) Width: 100 mm – 102 mm, length: 75 mm – 76.5 mm, thickness: 0.9 mm - 1.2 mm 3) Width: 126 mm – 128 mm (scanable area restricted to 107 mm), length: 75 mm – 76.5 mm, thickness: 1.1 mm - 1.4 mm	
	Size of cover glass	Thickness: 0.12 mm - 0.17 mm	
Optical frame	Illuminator	Built-in Koehler illumination for transmitted light	
	Objectives	Compatible objectives 2x, 4x, 10x, 20x, 30x, 40x, 60x and 100x, selected oil and silicon immersion objectives, Phase objectives	
	Motorized stage	Motorized XY stage with automatic control	
	Focusing	Motorized automatic control	
	Fluorescence Observation	» Motorized fluorescence illuminator » Motorized filter wheel » LED Fluorescence light source (Excelitas X-Cite Turbo, X-Cite Xylis)	
Camera system	Brightfield	2/3" CMOS camera, 3.45 µm x 3.45 µm pixel size, high sensitivity, high resolution	
	Fluorescence	Olympus VS304 high sensitive, high resolution or Hamamatsu ORCA Flash4.0 V3 and Orca Fusion	

		VS200 Single Tray Load (STL)	VS200 Multi Tray Loader (MTL)
Scan	Image correction	Shading correction, auto white balance, true color	
	Capacity	6 slides maximum (VS200 single tray)	210 slides maximum (VS200 multi tray loader)
	Pixel resolution (color camera)	20X (NA 0.80): 0.274 $\mu\text{m}/\text{pixel}$ Options: 10X (NA 0.40): 0.548 $\mu\text{m}/\text{pixel}$ 40X (NA 0.95): 0.137 $\mu\text{m}/\text{pixel}$ 40XO (NA 1.40): 0.137 $\mu\text{m}/\text{pixel}$ 60XO (NA 1.42): 0.091 $\mu\text{m}/\text{pixel}$ 100XO (NA 1.45): 0.055 $\mu\text{m}/\text{pixel}$	
	Scan time	Approx. 80 sec (20x objective, scan area 15 mm x 15 mm brightfield)	
	Software	Image format: vsi, JPEG, JP2, TIFF/zooming while scanning/annotations/automatic sample detection/ Z stack extended focus imaging/screen capture/step less zooming/synchronized multi-images display automatic stitching/slide loader control	
Environment	Weight	VS200 single tray BF: 69 kg VS200 single tray FL: 77 kg VS200 multi tray loader BF: 142 kg (without trays) VS200 multi tray loader FL: 150 kg (without trays) PC & Monitor: 16 kg 1 tray: 0.6 kg 35 trays (maximum): 21 kg	
	Operating Environment	Temperature: 15 – 28 degree centigrade, humidity: 30 % – 80 % (non condensing)	
	Power		
	Power Consumption		
Power Supply Ratings	Input	100-240 VAC; 50/60 Hz; 4 A	
	Output	24VDC, 9,2 A, 221 W MAX.	

9 Unboxing

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

9.1 VS200 Scanner

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

9.1.1 Mounting of handles - VS200 scanner

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.



CAUTION

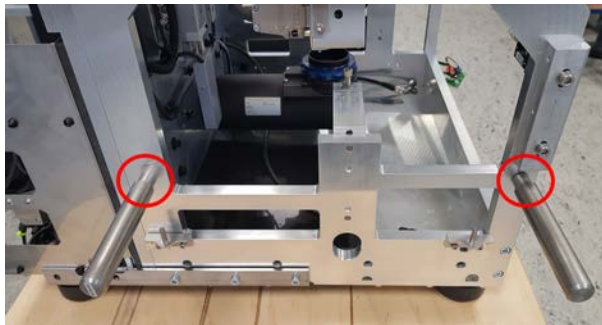
Risk of injury and risk of device damage if components are dropped

The scanner or other components might drop when you are moving them. Injury to your feet or damage to the device can result.

- ▶ Make sure that all handles for transportation are screwed in completely and tight.
- » The system must be carried by two people.

- ✓ Two people are required to lift the system onto a table

1. Mount the four handles (2 on each side) like in the image below.



2. Lift the system with two persons onto a stable table. The main center of gravity is at the back of the system.
3. Make sure that there is a gap of 30cm between the backside of the system and the wall.

9.2 Transportation locks for the VS200 scanner

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

This chapter describes how to remove the transportation locks from the VS200 scanner after shipping.



ATTENTION

The transportation locks must be remounted each time before the unit is transported. Make absolutely sure not to lose the transportation locks and the mounting material.



ATTENTION

Mögliche Geräteschäden durch Inbetriebnahme mit montierten Transportsicherungen!

Wird der Scanner in Betrieb genommen, ohne dass zuvor die Transportsicherungen vollständig demontiert wurden, kann es zu Geräteschäden kommen.

- ▶ Demontieren Sie vor Inbetriebnahme des Scanners unbedingt alle Transportsicherungen!

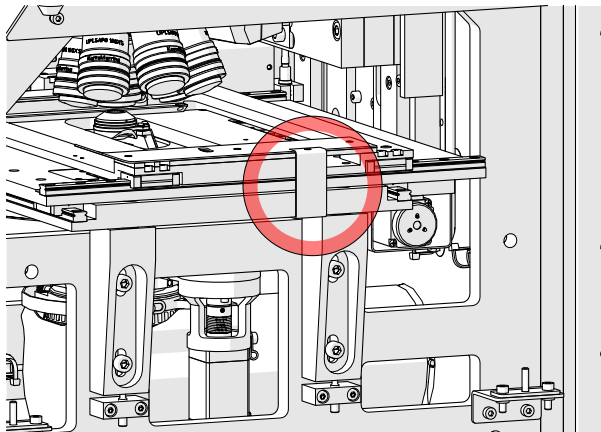
9.2.1 Removing transportation lock from stage

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

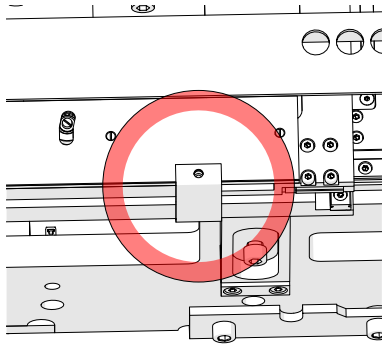


» Hex screwdriver (size 2.5 mm)

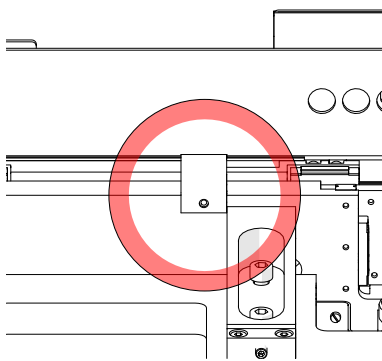
1. Go to the right side of the scanner.
2. Remove the red transportation lock from the microscope stage. To do so, remove the 2 hex screws (size 2.5 mm).



Sideview



View from above



View from below

9.2.2 Removing transportation lock from transmitted light condenser (BX3-UCD8A)

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.



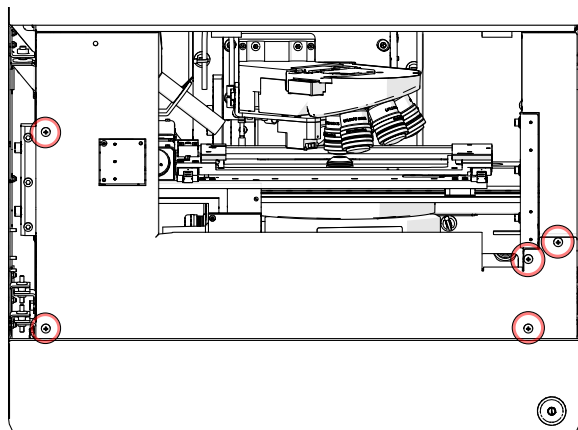
ATTENTION

The transportation locks must be remounted each time before the unit is transported. Make absolutely sure not to lose the transportation locks and the mounting material.

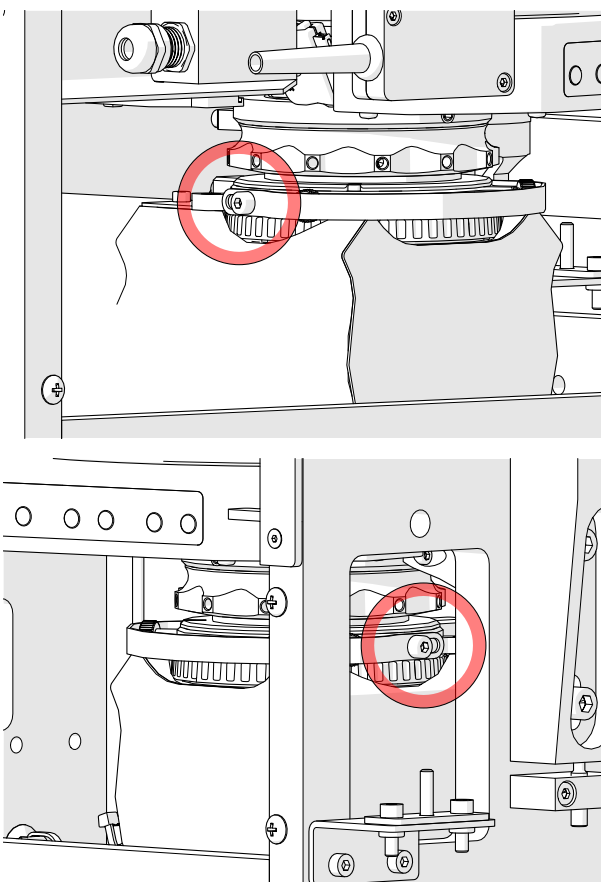


» Hex screwdriver (2,5 mm, 3 mm)

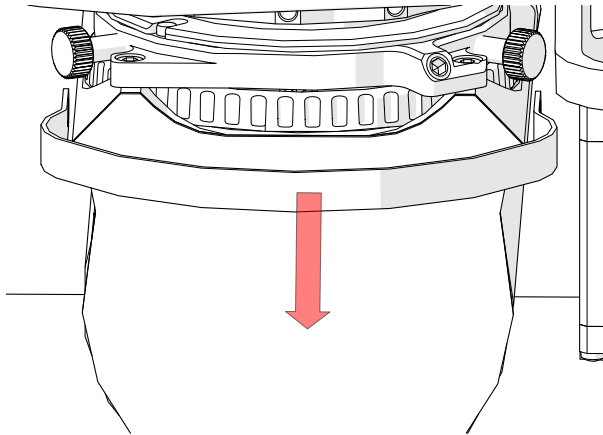
1. Remove the six 2.5 mm hex socket screws which hold the black tamper protection plate like shown in the image below.



2. Remove the transportation lock from the transmitted light condenser. To do so, remove the 2 hex screws (size 3) indicated in the figure.



3. Pull the transportation lock forwards and down to remove it.



9.3 VS200 Loader

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.



CAUTION

Risk of injury and risk of device damage if components are dropped

The loader or other components might drop when you are moving them. Injury to your feet or damage to the device can result.

- ▶ Make sure that all handles for transportation are screwed in completely and tight.
- ▶ The system must be carried by two people.

- ✓ Two people are required to lift the loader system onto a table.
1. Remove the outer cardboard packaging and take all small boxes out of the package.
 2. Take the top panel, back panel and the two front panels out of the boxes.
 3. Unpack the handles.
 4. Take the top of the loader cardboard packaging off and remove the outer cardboard (it consists of two parts).
 5. Open the foil at the top and push it downwards to the bottom (the bottom of the loader cardboard packaging can be unfolded) until you can access the two covers to access the threads for the lifting handles on each side.
 6. Remove the covers to access the threads for the handles.
 7. Mount the four handles (2 on each side) like in the images below.



8. Make sure that all handles for transportation are screwed in completely and tight.
9. Remove all blue tape stripes for the grounding flags as well as the tape that secures the front door.



10. Remove the tape at the bottom left corner and take out the bubble foil pocket which contains the cable for the loader connection.



11. Open the door and remove the six desiccant bags.



12. Use two persons to lift the loader onto a very stable table to the right side of the VS200 scanner. The center of gravity is at the right backside of the system.
13. Remove the handles and keep them as they might be needed in the future.

**ATTENTION**

The system should not be repositioned by the end user. If the system has to be repositioned an Olympus sales representative has to be contacted first.

9.3.1 VS200 Trays

1. Unbox the VS200 trays carefully and handle them with care. Avoid bending of a tray at any time.
2. Put the trays aside for later use.

9.3.2 PC and monitor

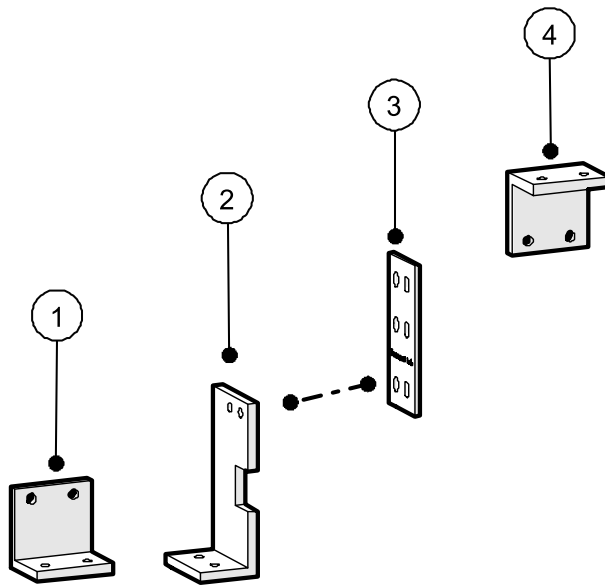
The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

1. Take the PC out of it's cardboard packaging.
 - » Inside the PC cardboard packaging you find the mouse and keyboard as well.
2. Take the monitor out of it's cardboard packaging and put it onto the table.
 - » All necessary cables are inside the cardboard packaging.

9.4 VS200 loader transportation locks

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

This chapter describes how to remove the transportation locks from the VS200 loader after shipping.



Overview - transportation locks



ATTENTION

Mögliche Geräteschäden durch Inbetriebnahme mit montierten Transportsicherungen!

Wird der Loader in Betrieb genommen, ohne dass zuvor die Transportsicherungen vollständig demontiert wurden, kann es zu Geräteschäden kommen.

- Demontieren Sie vor Inbetriebnahme des Loaders unbedingt alle Transportsicherungen!

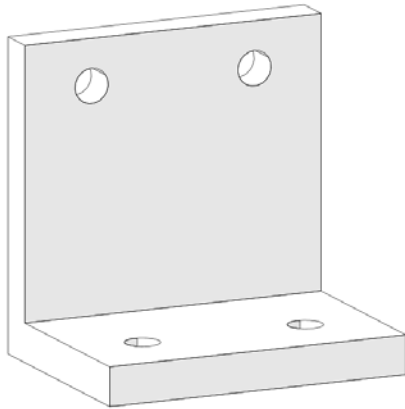


ATTENTION

The transportation locks must be remounted each time before the unit is transported. Make absolutely sure not to lose the transportation locks and the mounting material.

9.4.1 Removing transportation lock from VS200 loader's tray hotel

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.



Transportation lock (1)



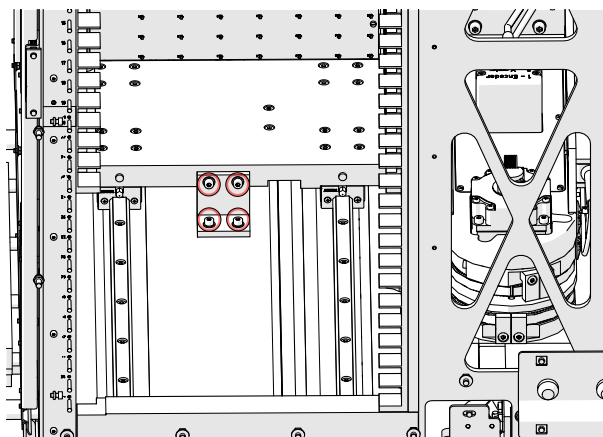
ATTENTION

The transportation locks must be remounted each time before the unit is transported. Make absolutely sure not to lose the transportation locks and the mounting material.



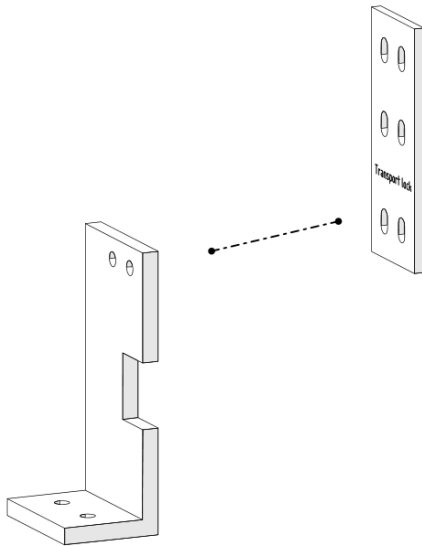
» Hex screwdriver (size 3 mm)

1. Remove the red transportation lock from the VS200 loader's tray hotel. To do so, loosen the 4 hex screws (size 3 mm) indicated in the figure.



9.4.2 Removing transportation lock from SCARA robot arm

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.



Transportation lock (2) and (3)



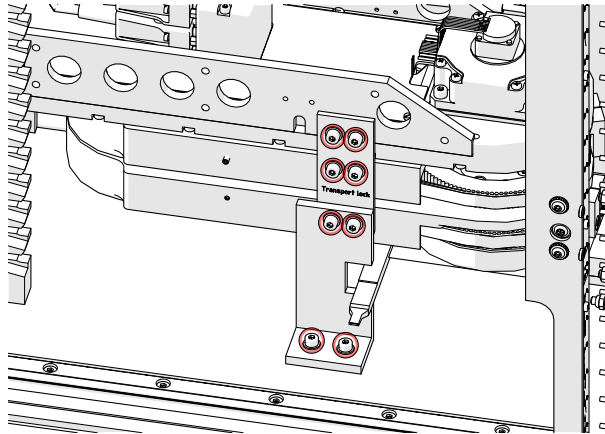
ATTENTION

The transportation locks must be remounted each time before the unit is transported. Make absolutely sure not to lose the transportation locks and the mounting material.



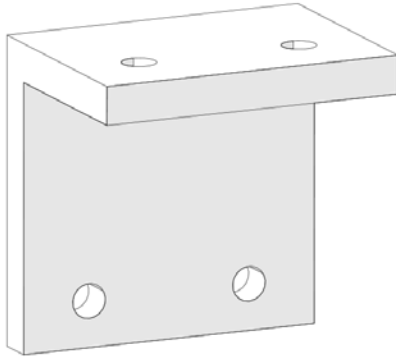
» Hex screwdriver (size 3 mm)

1. Remove the red two-part transportation locks from the SCARA robot arm. To do so, loosen the 8 hex screws (size 3 mm) indicated in the figure.



9.4.3 Removing transportation lock from SCARA robot arm's counterweight

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.



Transportation lock (4)



ATTENTION

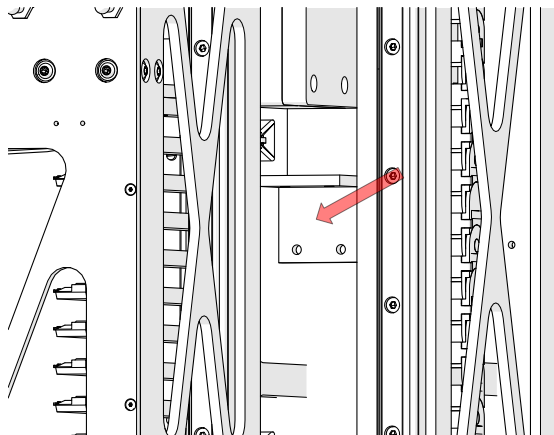
The transportation locks must be remounted each time before the unit is transported. Make absolutely sure not to lose the transportation locks and the mounting material.



» Hex screwdriver (size 3 mm)

1. Remove the red transportation lock from the brass colored counterweight of the SCARA robot arm. To do this, loosen the 3 hex screws (size 3 mm) indicated in the figure.

Make sure that the screws do not fall inside the housing.



» The unit of SCARA robot arm and counterweight can now move freely.

10 Mounting of components

10.1 Scanner

10.1.1 Objectives

The VS200 system is shipped with no objective mounted in the IX3-nosepiece.

1. Make sure that the power of the VS200 system is switched off!
2. Open the door of the VS200 scanner.
3. Make sure that the objective is clean and dust free before you mount it.
4. Depending on your VS200 kit you need to mount different objectives.

The objectives should be mounted into fixed positions as per the list below. You can rotate the nosepiece revolver in any direction so that it is easier to mount an objective



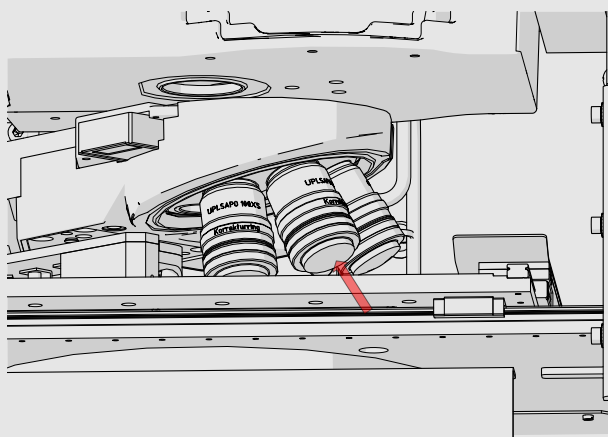
By default a VS200 system is shipped with a 2x and 20x objective. Additionally recommended objectives are the 10x and 40x UPLXAPO. Basically, all other Olympus objectives that fit into the IX3-nosepiece can be used and are supported.

5. Remove the small plastic protection cover from the objective position.
6. Screw in the objectives counter clockwise and make sure that the objective is screwed in tightly.

Position list for objectives

 The position of the nosepiece is indicated at the center of the IX3-nosepiece.

Nosepiece position	Objective
1	2x PLN
2	20x UPLXAPO
3	10x UPLXAPO
4	40x UPLXAPO
5	Any immersion objective or phase contrast objective
6	4x UPLFLN



If you mount objectives in a different order you must subsequently adjust all device settings and observation methods. In this case refer to chapter [Device settings - objectives auf Seite 87](#) and [Device customization auf Seite 90](#).

 If you have a brightfield system only please continue with chapter [Assembly of the housing for scanner auf Seite 62](#).

10.1.2 Immersion Objectives

Pay attention to the following notes when using an immersion medium.



CAUTION

Certain immersion media can contain harmful substances. Make sure to read the manufacturer's safety data sheet before using your immersion medium.

**ATTENTION**

- » It is not possible to change the type of immersion medium once the glass laboratory bottle has been filled with either oil or silicone immersion medium. Otherwise damage can occur to the liquid dispenser.
- » Before the VS200 system can be shipped (e.g. for repair) all liquids have to be removed from the system. Please contact the Olympus Customer Support for detailed information.
- » It is not possible to change the type of immersion medium once the glass laboratory bottle has been filled with either oil or silicone immersion medium. Otherwise damage can occur to the liquid dispenser.



As the liquid dispenser was tested with Olympus immersion media the best performance will be obtained with Olympus immersion media (Olympus Type-F Immersion Oil or Olympus Silicon Immersion Oil SIL300CS-30SC).

The VS200 system can be equipped with an automatic liquid dispenser capable of dispensing different types of immersion medium. Once a particular type of immersion medium has been used, you can no longer switch to a different type.

The liquid dispenser can only be installed by Technical Service of Olympus.

The immersion objectives, oil or silicone, can be installed by anybody however.

Mount the e.g. 60x UPlanXApo O objective into an empty position (e.g. pos. 5) of the IX3 nosepiece.

Refer to chapter [Device settings - objectives auf Seite 87](#) to configure this objective into the device settings.

10.1.3 Phase Contrast (PH) objectives



The default configuration of a VS200 system includes 3 phase contrast inserts in the filter wheel of the BX3 condenser.

BX3 condenser pos.	Insert
1	U-PH1-S
2	U-PH2-S
3	U-PH3-S

Mount e.g. the 20x UPlanFL N Ph1 objective into an empty position (e.g. pos. 5) of the IX3 nosepiece. Refer to chapter [Device settings - objectives auf Seite 87](#) to include this objective into the device settings.

11 Mounting fluorescence components

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

💡 Skip this chapter if you have a brightfield system only.

In the box with the fluorescence components (A, B, C or D) you find all parts needed to setup fluorescence for the VS200 system. Carefully unbox all components and follow the instructions.

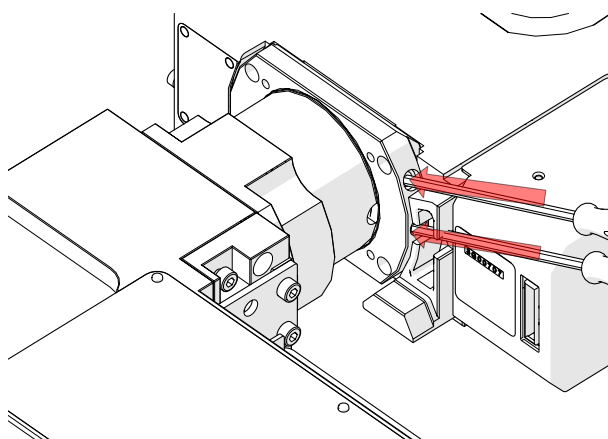
11.1 IX3-RFACA and IX3-RFALFE

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.



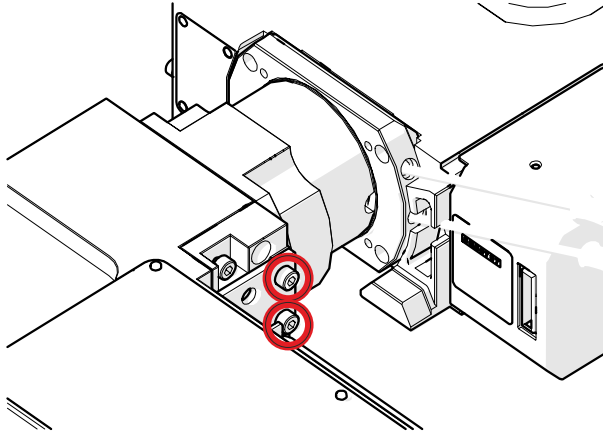
» 3 mm and 4 mm hex key

1. Assemble the IX3-RFACA and IX3-RFALFE as shown in the image below and hand-tighten the two 3 mm hex socket screws at the junction.

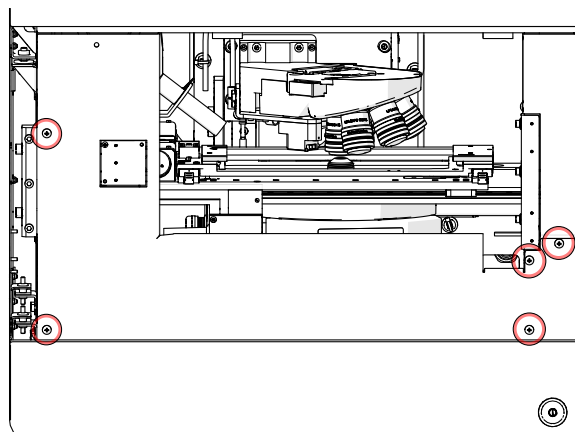


11 Mounting fluorescence components

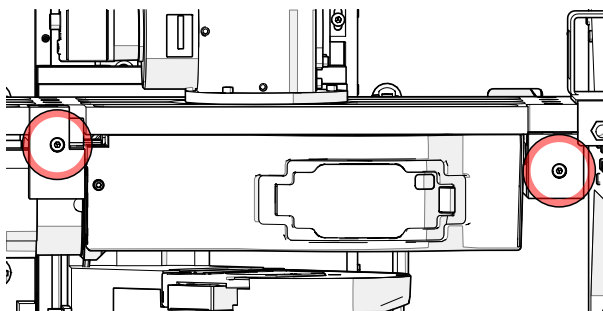
2. Use a 3mm hex key to remove the two hex socket screws which hold the slider of the field stop.



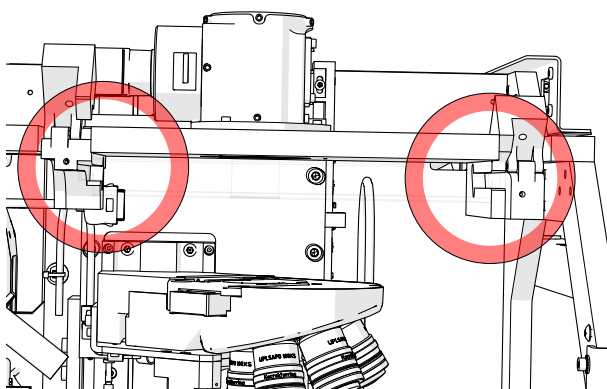
3. Make sure that the field stop is pushed in completely.
4. Goto the scanner and open the front door.
5. Remove the six 2.5 mm hex socket screws which hold the black tamper protection plate like shown in the image below.



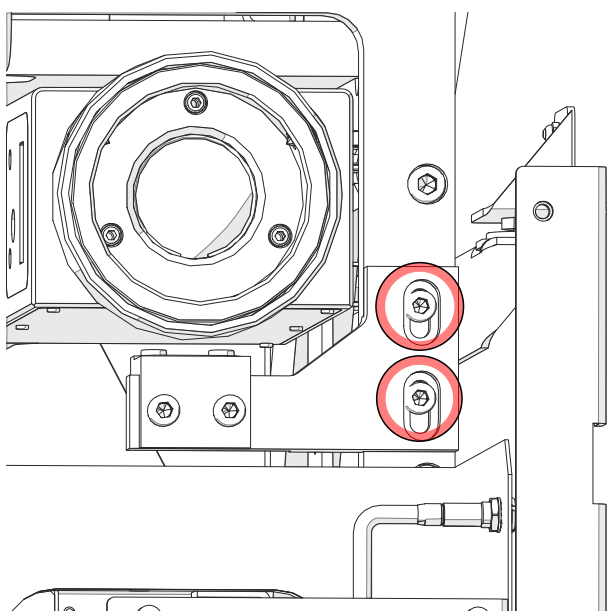
6. Remove the two 3 mm hex socket screws from the left and the right securing brackets from the VS200 system as shown in the image below.



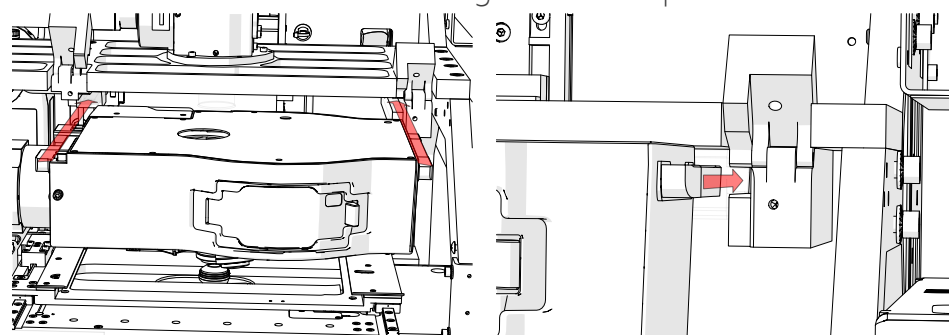
7. Fold up the two securing brackets.



8. Remove the two 4 mm hex socket screws from the RFAA supporting bracket, which is attached to the frame at the back of the system.

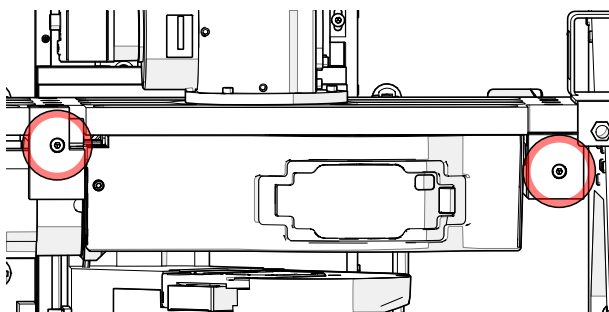


9. Insert the IX3-RFACA/ IX3-RFALFE unit into the system. Make sure that it fits into the rails on the left and the right side and flip down the brackets.

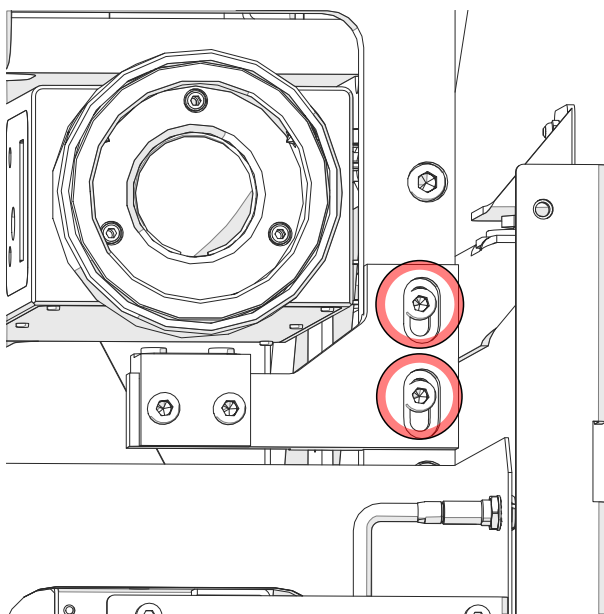


11 Mounting fluorescence components

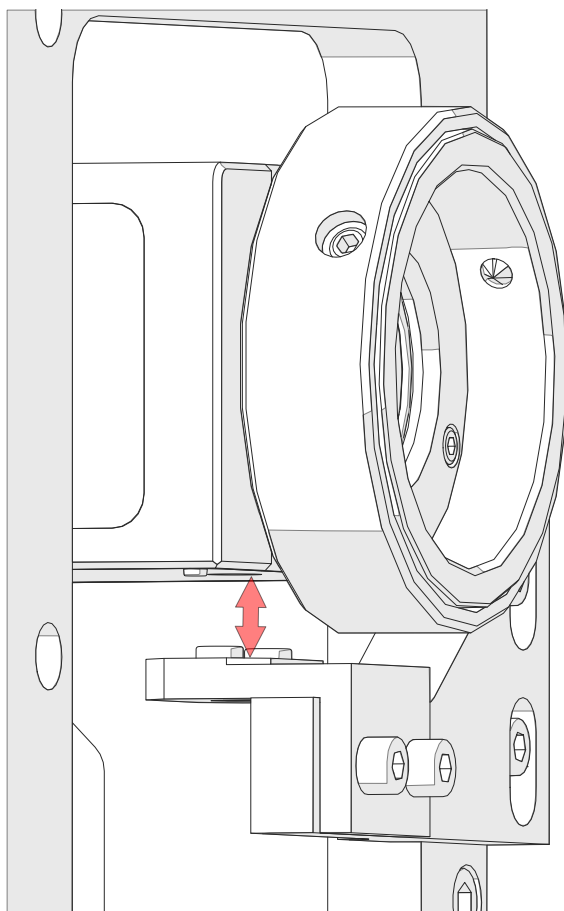
10. Tighten the two 3 mm hex socket screws to fix the brackets.



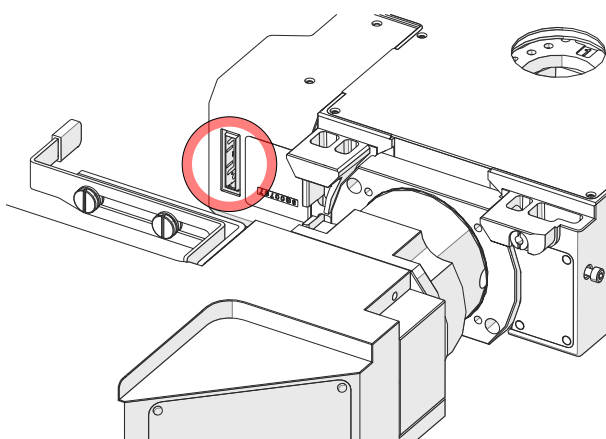
11. Attach the RFALFE supporting bracket again at the back of the system's frame. Insert the two 4 mm hex socket screws but don't tighten them.



12. Push the bracket upwards until it attaches to the IX3-RFALFE and tighten the two hex socket screws.

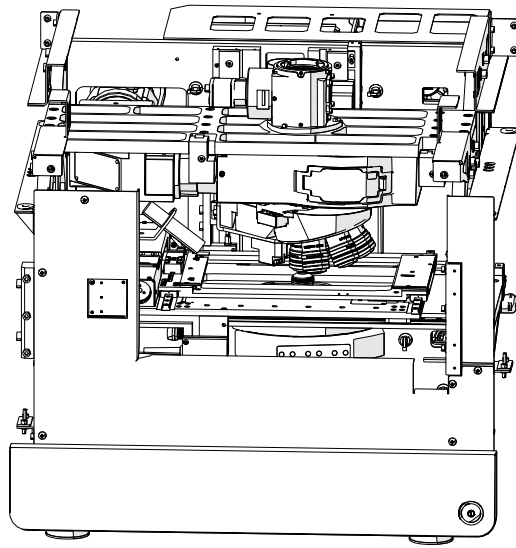


13. Make sure the power is switched off and attach the IX3-RFACA cable to the socket at the back of the IX3-RFACA.



14. Attach the black tamper protection plate again and tighten the six hex socket screws.

» Finally the system should look like on the image below.



11.2 Fluorescence filter wheels or camera adapter for mono-chrome camera

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

Depending on the customer's configuration you either have to mount only one or two fast filter wheels. The following chapter describes how to mount the different filter wheels.

11.2.1 U-FFWR (Motorized fast reflected light filter wheel)

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.



IMPORTANT

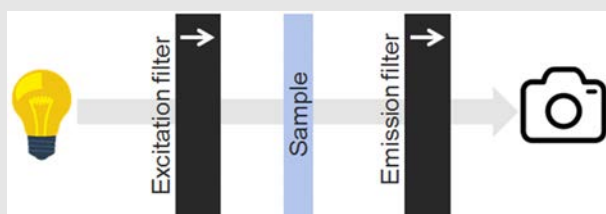
Before you mount the U-FFWR make sure you insert all excitation filters into the filter wheel. Note the position of the individual filters as you might need them later for the observation method adjustment. If you mount them as set out in the table below, less adjustments will have to be made later.

U-FFWR position	25 mm excitation filter
1	DAPI
2	FITC
3	CY3
4	CY5
5	CY7
6	Black-out filter
7	Black-out filter
8	Black-out filter

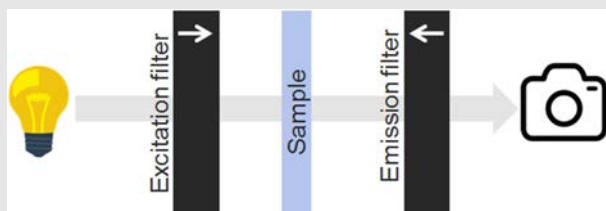
Refer to the U-FFWR instruction manual to the chapter for filter insertion for more information.



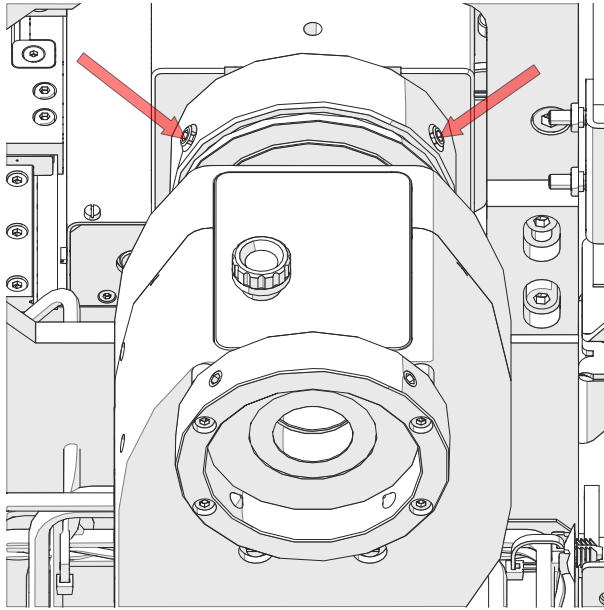
The orientation for Semrock emission filters is with the arrow towards the camera.



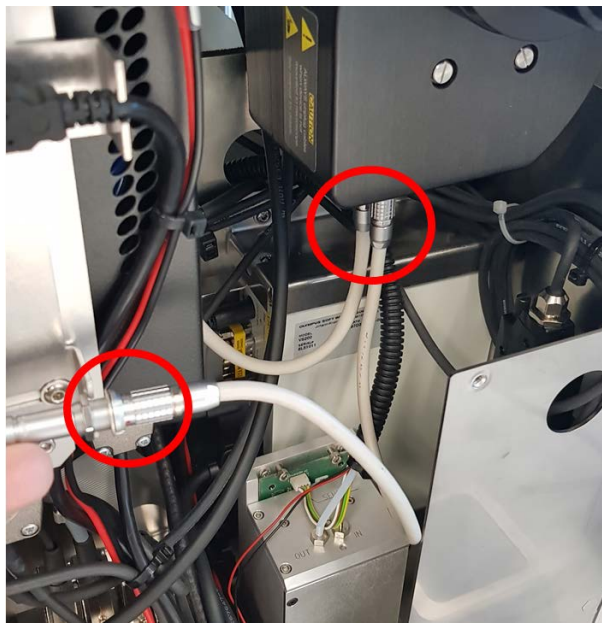
The orientation for Chroma emission filters is with the arrow pointing away from the camera.



1. Attach the U-FFWR to the flange of the IX3-RFALFE at the back of the system and tighten the two 3 mm headless hex screws.



2. Use the short CAN bus cable (35cm) to connect the U-FFWR to the VS200 system. Note the plug orientation indicated by the red dot.



3. In case you do not have a U-FFWO connect the terminator to the second plug at the U-FFWR.

11.2.2 Add or replace filter (U-FFWR)

1. Make sure that the power of the VS200 system is switched off.
2. Remove the backside top panel. See [Top panel auf Seite 66](#).
3. To add or replace a 25mm emission filter in the U-FFWR open the cover of the filter wheel loosening the knurled head screw.

11 Mounting fluorescence components

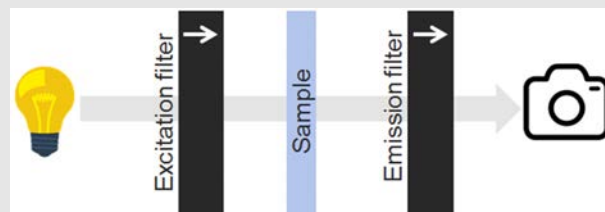


4. Insert the filter into an empty position. Make sure that you orient the filter correctly when you insert it.

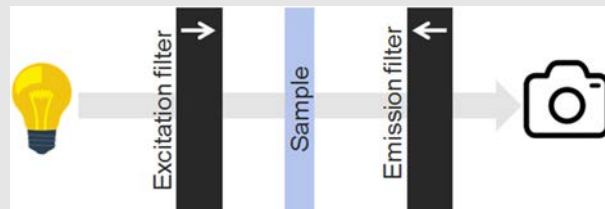
» Refer to the U-FFWR instruction manual for more information.



The correct orientation for Semrock emission filters is with the arrow towards the camera.



The correct orientation for Chroma emission filters is with the arrow pointing away from the camera.



5. Write down the position number of the filter as you will need it later.
6. Configure the filter in the VS200 ASW software. To do this, open the [Device Settings] dialog box. You can open this dialog box in the [Manual control] layout.
7. Click the [Previously Used Layout]  button to go to a different layout. You can find the [Previously Used Layout] button at the top right in the navigation bar on the software's start page.
8. At the top right, on the menu bar click the [Manual control] button.
9. Select the [Acquire] > [Devices] > [Device Settings] command to open the [Device Settings] dialog box.

10. Configure the filter. See [Device settings - filter auf Seite 88](#).

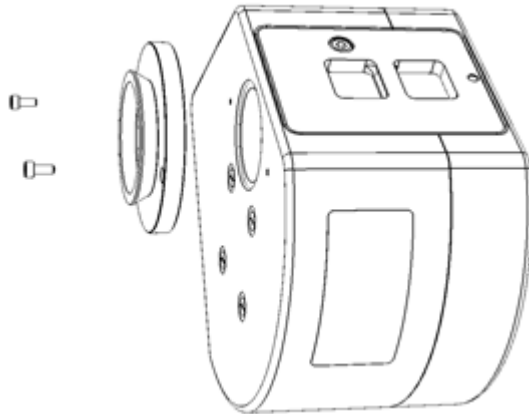
11.2.3 U-FFWO T3 (Motorized fast observation filter wheel)

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.



- » Hex key (2.0) to lock the tubus
- » Hex key (3.0) to open the filterwheel
- » Small spanner to adjust the height of the tubus
- » Spanner to fix the tubus

1. Before you can mount the U-FFWO T3 you need to assemble the bottom flange. The bottom flange is fixed with two 2.0 mm hex socket screws.
 - » For details refer to the U-FFWO manual.



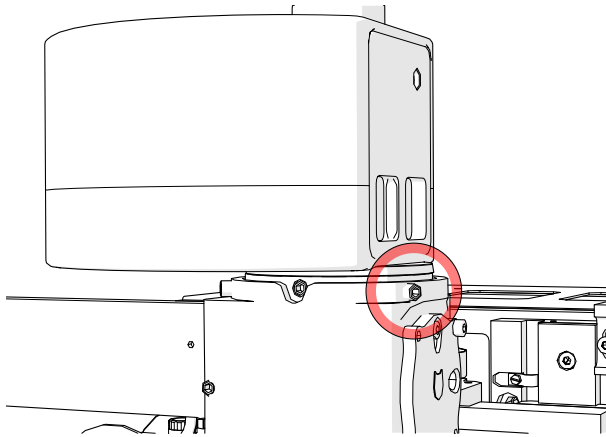


Before you mount the U-FFWO T3, make sure you insert all emission filters into the filter wheel. Note the position of the individual filters as you might need them later for the observation method adjustment. Refer to chapter [Add or replace filter \(U-FFWO\) auf Seite 51](#) for filter orientation.

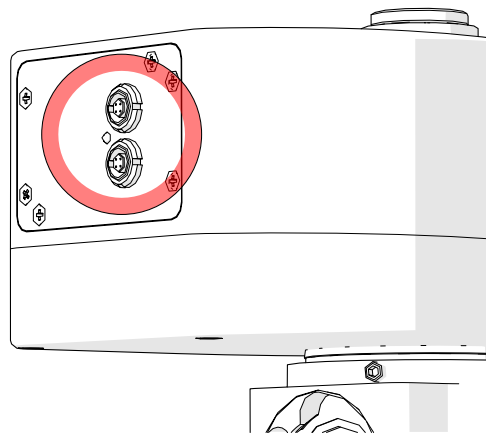
U-FFWO T3 position	25 mm emission filter
1	DAPI 432/36
2	FITC 515/30
3	CY3 595/31
4	CY5 680/42
5	CY7
6	Black-out filter
7	Black-out filter
8	25 mm Glass



2. Refer to the U-FFWO instruction manual to chapter [\[Inserting the Optical Filters\]](#) for more information about filter insertion.
3. Mount the U-FFWO T3 with the cable connector facing to the left side onto the beam splitter and tighten the headless hex screw (3.0 mm) facing towards the front.



4. Connect the CAN-bus cable (which you find in the inside of the scanner) to the lower connector and the CAN-terminator to the upper connector.

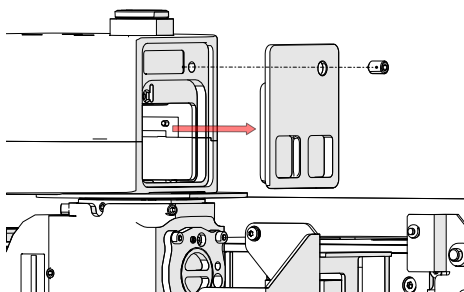


11.2.4 Add or replace filter (U-FFWO)



» Hex key (3 mm)

1. Make sure that the power of the VS200 system is switched off.
2. To add or replace a 25 mm emission filter in the U-FFWO, open the cover of the filter wheel using a 3 mm hex key.

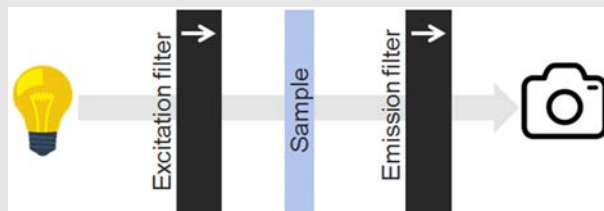


3. Insert the filter into an empty position. Make sure that you orient the filter correctly when you insert it.

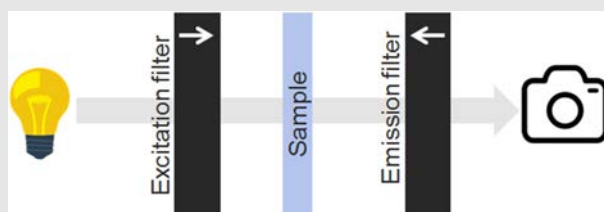
- » Refer to the U-FFWO instruction manual to chapter [\[Inserting the Optical Filters\]](#) for more information.



The correct orientation for Semrock emission filters is with the arrow towards the camera.



The correct orientation for Chroma emission filters is with the arrow pointing away from the camera.



4. Write down the position number of the filter as you will need it later.
5. Configure the filter in the VS200 ASW software. To do this, open the [\[Device Settings\]](#) dialog box. You can open this dialog box in the [\[Manual control\]](#) layout.
6. Click the [\[Previously Used Layout\]](#)  button to go to a different layout. You can find the [\[Previously Used Layout\]](#) button at the top right in the navigation bar on the VS200 ASW software's start page.
7. At the top right, on the menu bar click the [\[Manual control\]](#) button.
8. Select the [\[Acquire\]](#) > [\[Devices\]](#) > [\[Device Settings\]](#) command to open the [\[Device Settings\]](#) dialog box.
9. Configure the filter. See [Device settings - filter auf Seite 88](#).

11.2.5 TV 1.0x adapter

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

1. In case you have a TV1.0x adapter mount it onto the beam splitter and tighten the headless hex screw (3.0 mm) which is facing towards the front.

11.3 Monochrome camera

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

11 Mounting fluorescence components

Depending on the fluorescence kit, VS200 offers three different monochrome cameras:

- » VS304M (iDS)
- » Orca Flash 4.0 (V3)
- » ORCA Fusion VS200



When you switch on an Orca camera wait at least one minute before you start the VS200 ASW software otherwise the camera will not be recognized.

If you have a TV1.0x adapter on top of the beam splitter, screw the camera on top of the adapter. See [Orientation of the monochrome camera auf Seite 53](#) for the orientation of the camera.

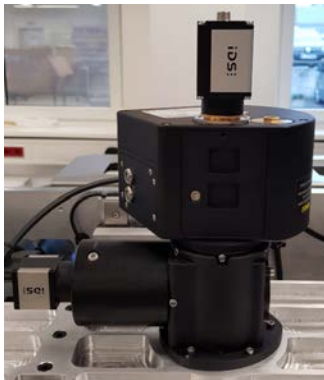
11.3.1 Orientation of the monochrome camera

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.



The orientation of the monochrome camera is very important!

The orientation of the VS304M camera should be with the iDS logo to the front (angled USB-C cable port to the back).



The orientation of the ORCA Flash 4.0 camera should be with liquid cooling connectors to the front (USB 3 and power connector on the left side).



11 Mounting fluorescence components

The orientation of the ORCA Fusion VS200 camera should be with the water cooling connectors facing the front side of the system.



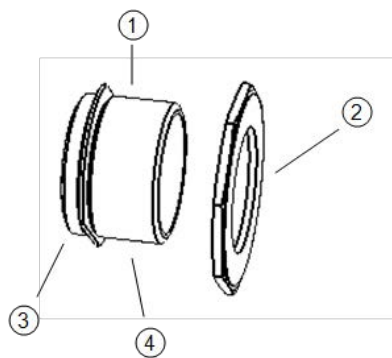
If your fluorescence kit contains a U-FFWO T3, follow the instructions below to mount a monochrome camera. For more details refer to the U-FFWO manuals.

This example describes how to attach an ORCA Flash 4.0 camera to the U-FFWO T3. The attachment of VS304M (iDS) and ORCA Fusion VS200 is identical.

Mounting a camera to the U-FFWO

Refer to the U-FFWO instruction manual to chapter [\[Mounting a camera to the U-FFWO\]](#) for more information.

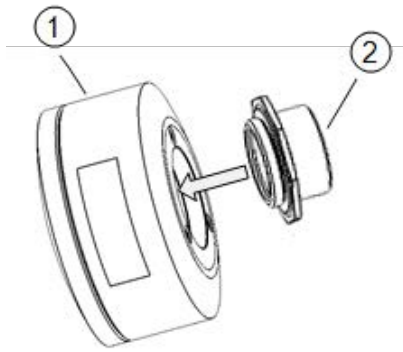
1. Check that the counternut is pre-installed on the long side of the C-mount adapter. The counternut should be 1 turn away from the C-mount adapter.



(1)	C-mount adapter
(2)	counternut
(3)	short side
(4)	long side

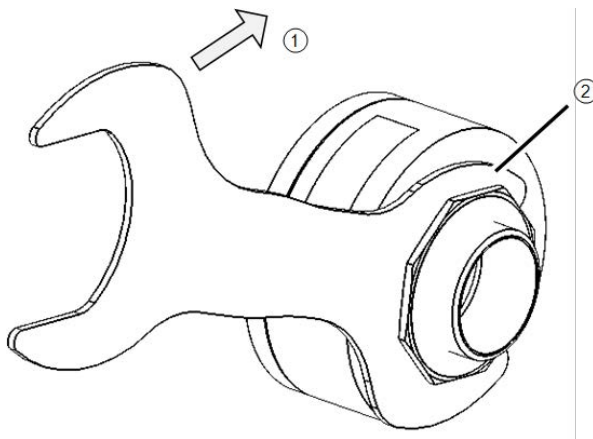
2. Hand-tighten the short side of the C-mount adapter to the camera clock-wise.

11 Mounting fluorescence components



- | | |
|-----|---------------------------------|
| (1) | camera |
| (2) | C-mount adapter and counter nut |

3. Fasten the C-mount adapter (not the counter nut) clockwise to the camera by using the large wrench tool as indicated below.

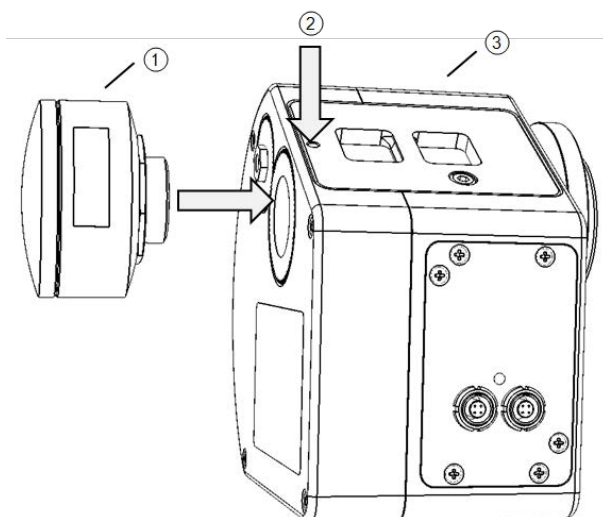


- | | |
|-----|--------------------------|
| (1) | fasten clockwise |
| (2) | large wrench, small side |

4. Hand-tighten the camera and C-mount adapter to the U-FFWO.



Be aware to tighten the camera orientation lock first to prevent slippage of the locking mechanism. To do so, tighten the rotation locking screw using a 2 mm hex key.



(1)	camera
(2)	tighten rotation locking screw
(3)	U-FFWO

5. As a final step, adjust orientation and parfocality of the camera, and then lock the camera via counternut to prevent accidental de-adjustment.

How to adjust the camera adapter (tubus) is described in chapter [Camera adapter auf Seite 139](#).

11.4 X-Cite adapter

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

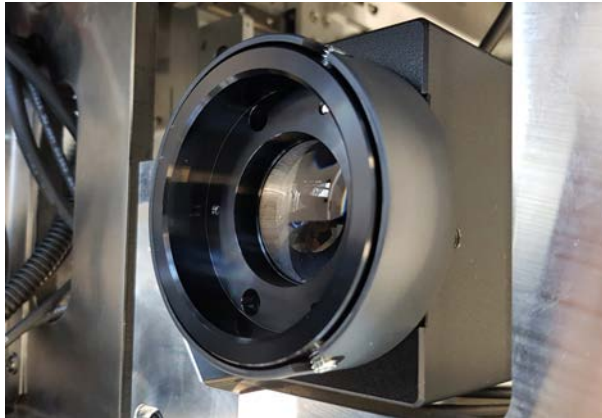


» Hex key (3.0 mm)



X-Cite adapter

1. Depending on the system configuration attach the X-Cite adapter to either the IX3-RFALFE flange (A) directly, or - if a U-FFWR is present - attach it to the flange of the U-FFWR (B).



Option A: IX3-RFALFE flange



Option B: U-FFWR

11.5 4x Objective

For proper system performance when acquiring fluorescence overview images the UPFLN4X has to be mounted on position 6 of the IX3-nosepiece.

See [Mounting of components auf Seite 37](#) for installation instructions.

11.6 LED light source

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

Two LED light sources (X-Cite Xylis and X-Cite Turbo) are available for the VS200 system.

- ✓ The X-Cite Turbo light source is not available in all countries.

11 Mounting fluorescence components

Follow the safety precautions at all times during operation and maintenance of this product. Non-observance may result in eye injury or damage to the system.



CAUTION Risk of injury to the eyes

- » Do not look at operating lamp/LED as it can emit UV light.
- » Never look into the light emitting end of the light guide. The light could severely damage the eye if the light is observed directly.

- » Always make sure the liquid light guide and X-Cite adapter are securely attached to the VS200 system. This will minimize the risk of exposure to the UV light.
- » If the light source has a malfunction please contact Olympus or Excelitas customer support. If the light source is serviced always make sure that the power cord is disconnected.
- » Place the unit onto a hard, stable surface and make sure the ventilation openings are not covered by something.
 1. Unbox the LED light source and avoid bending or stretching of the liquid light guide.
 2. Mount the light guide into the X-Cite adapter and tighten the knurled head screw.
Image
 3. Insert the other end of the light guide into the LED light source (see manufacturer's operating manual for detailed information).

11.7 Filter set

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

Depending on the purchased filter set insert the single-band excitation filters into the U-FFWR filter wheel. Refer to chapter [Fluorescence filter wheels or camera adapter for monochrome camera auf Seite 45](#) for the position information.

- » Insert the single-band emission filters into the U-FFWO (if available). Refer to chapter [Fluorescence filter wheels or camera adapter for monochrome camera auf Seite 45](#) for position information.
- » Put the 25 mm glass filter into position 8 of the U-FFWO.
- » Put the black-out filter into all empty filter wheel positions.

The following chapters describe how to mount filter cubes into the IX3-RFACA.

11.7.1 U-FF filter cube (IX3)

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

11 Mounting fluorescence components

1. Open the door of the VS200 scanner.
2. Slide the door of the IX3-RFACA to the left to insert an IX3 filter cube.
3. Insert a new filter cube into the correct position (position 2) as shown in the image.



The correct position is printed inside of the IX3-RFACA and is hard to read as the IX3-RFACA is mounted upside down. If you cannot read it make sure that the filter is placed between the position index 7 and 8 as shown in the image below.



4. After the cube is inserted slide the door of the IX3-RFACA back to the right.

11.7.2 Add or replace filter cube (IX3)

1. Make sure that the power of the VS200 system is switched off.
2. To add or replace an IX3 filter cube into the IX3-RFACA slide the door of the IX3-RFACA to the left.
3. Insert the filter cube into an empty position.
4. Write down the position number of the filter cube as you will need it later.
5. Configure the mirror cube in the VS200 ASW software. To do this, open the [Device Settings] dialog box. You can open this dialog box in the [Manual control] layout.
6. Click the [Previously Used Layout]  button to go to a different layout. You can find the [Previously Used Layout] button at the top right in the navigation bar on the software's start page.
7. At the top right, on the menu bar click the [Manual control] button.

8. Select the [Acquire] > [Devices] > [Device Settings] command to open the [Device Settings] dialog box.
9. Configure the filter cube. See [Device settings - filter auf Seite 88](#).

11.7.3 U-FDICT filter cube

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

Mount an optional U-FDICT for polarized light acquisition. The U-FDICT should be placed into position 8 of the IX3-RFACA because this position is configured in the default device settings.

1. Insert the U-FDICT into position 8 as shown in the image.

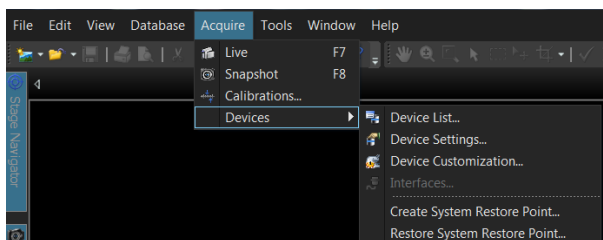


» It is between the index 5 and 6.



Refer to chapter [Activate the motorized polarizer auf Seite 86](#) and [Setup polarization \(Pol\) observation method auf Seite 94](#) to configure the system to scan with polarized light.

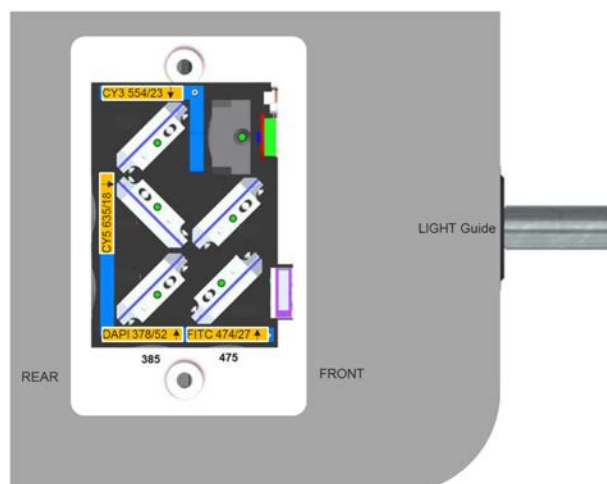
If you would like to install other filter cubes please make sure that you register them in the dialog box [Device Settings] later. See [Device settings - filter auf Seite 88](#).



11.7.4 X-Cite Turbo

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

The excitation filters in the X-Cite Turbo have to be placed as indicated in the boxes in the picture below (the arrows show the filter orientation). Refer to the X-Cite Turbo manual how to mount the filters.



12 Assembly of the housing for scanner

💡 Before starting with the assembly of the housing make sure the main power is disconnected!

The VS200 system is shipped with only the front door mounted. Side, back and top panels have to be attached on site.

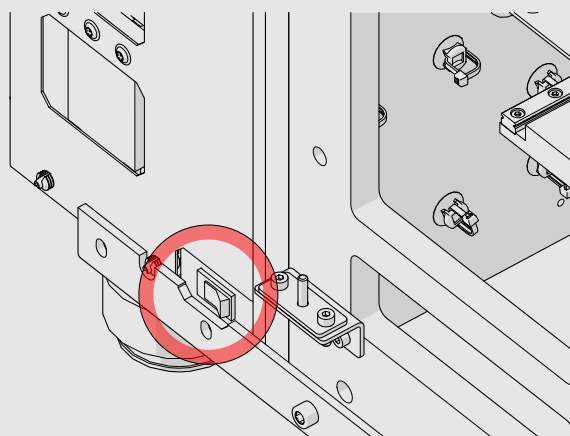
1. Remove the four handles.

💡 Follow the correct order for mounting the elements of the housing so that you don't run into any trouble.

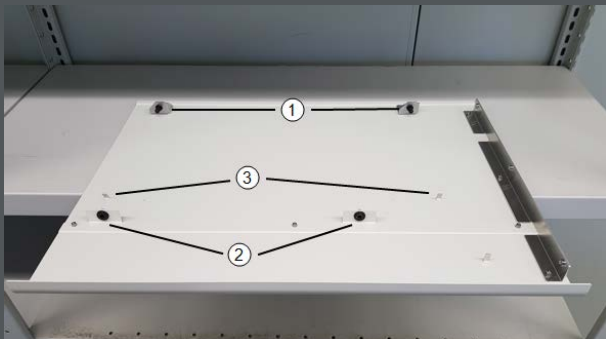
12.1 Left panel

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

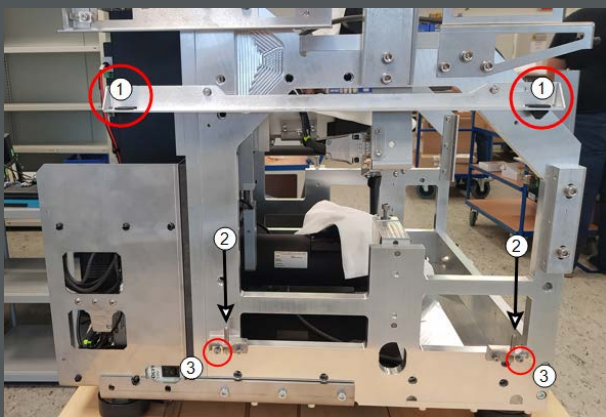
💡 Before you install the left side panel make sure that the power switch of the U-CBM is switched on.



The left side panel has two black quick lock pins (1) at the top and two rubber ring sockets (2) near the bottom. Additionally it has two connectors (3) for the grounding flags which need to be connected with the cables coming from the VS200 frame.

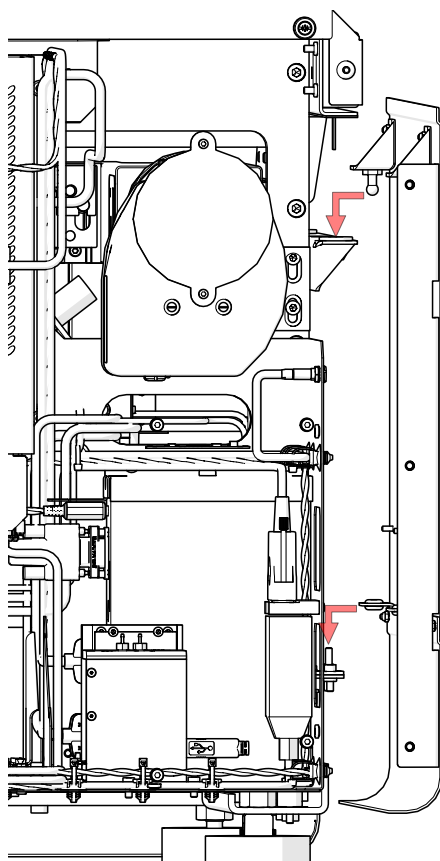


On the left side of the VS200 scanner you find two quick locks sockets (1) at the top and two small pins (2) close to the bottom as well as two grounding flag connectors with cables attached (3).



1. Place the panel next to the system and connect the two grounding flags to the side panel first.
2. Mount the side panel so that the rubber rings of the panel fit onto the small pin on the VS200 system.
3. Once the pins are inside the rubber rings push the panel towards the frame and finally push it down so that the black quick lock pins of the side panel fit

into the sockets.



12.2 Right Panel

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

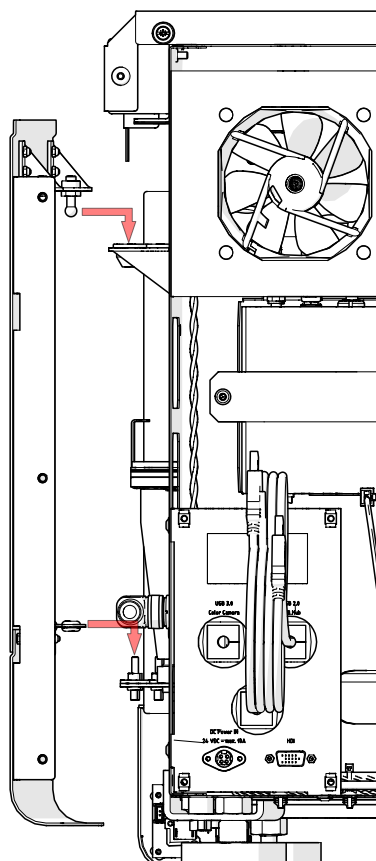


Depending on your system configuration (with or without loader) the VS200 system comes with two different right side panels. The side panel of the loader variant has an opening for loading the trays.

The mounting of the right side panel is similar to the left panel. There are two rubber sockets (quick locks at the top) and two small pins close to the bottom of the VS200 scanner and three grounding flags.

1. First connect the two grounding flags to the side panel.
2. Mount the side panel so that the rubber rings of the panel fit onto the small pin on the VS200 system.
3. Once the pins are inside the rubber rings push the panel towards the frame and finally push it down so that the quick lock pins of the side panel fit into

the sockets.



12.3 Back panel

The back panel needs to be attached before mounting the top panels. It is fixed with four knurled head screws.

The three knurled head screws at the top are part of the top panel and are tightened later.

1. Guide the three cables from the backside of the VS200 system through the back panel like shown in the image below.



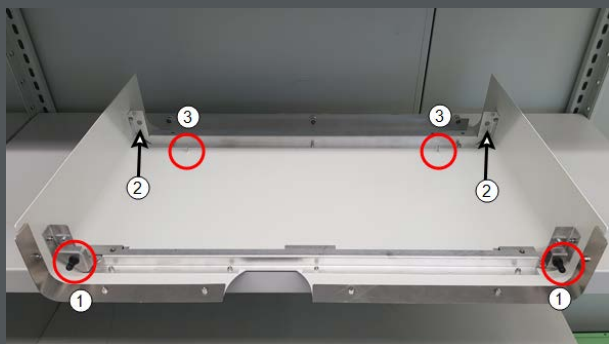
2. Guide the optional liquid light guide through the hole in the back like shown in the image below.
3. Place the back panel against the backside of the system and tighten the four knurled hex screws.

12.4 Top panel

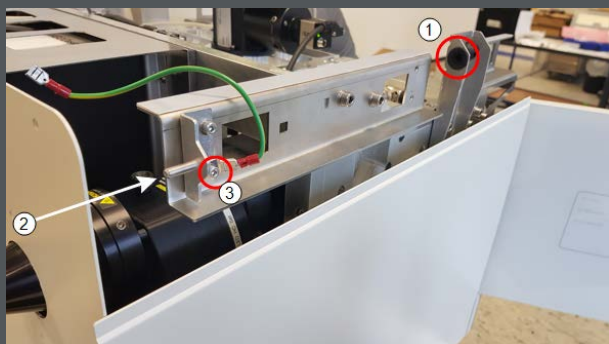
Top panel - first part

The top panel consists of two parts. You have to start with the back part (large part) of the top panel.

The panel has two quick lock pins (1) in the front and two guiding holes in the back (2). Additionally there are two grounding connectors (3) where you have to connect the grounding flags coming from the VS200 frame.



On each side of the VS200 scanner there is a quick lock socket (1) and a small pin (2) as well as one connector with grounding flag attached (3).



On each side there is the connector (system side) for the grounding flag.

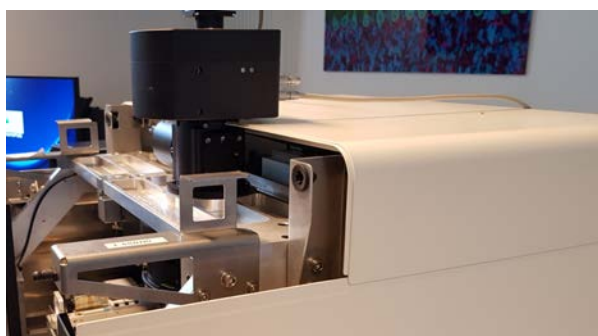
1. Connect the two grounding flags (left and right side) to the top panel.
2. Put the top panel parallel to the scanner.



3. Gently push the top panel to the front of the system (where the front door is mounted).



- » If the first part of the top panel is correctly mounted it should look like this:



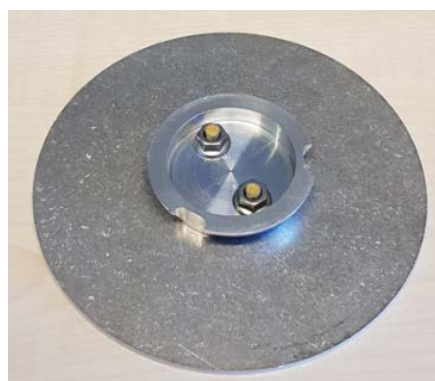
Mount the beam splitter cover



In case you have a brightfield system only you have to mount the beam splitter cover now.



top view



bottom view

1. Put the round cover on top of the beam splitter flange and fix it by tightening the 3mm headless hex screw.

Images

Top panel - second part

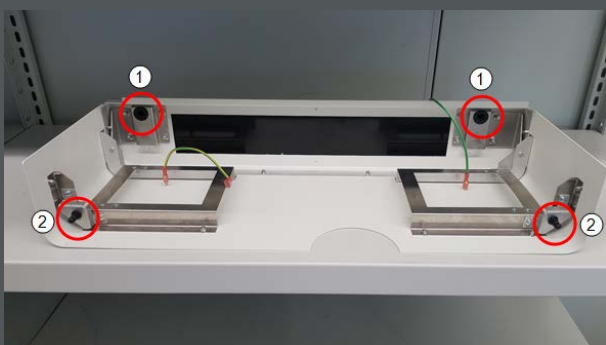
To attach the second part of the top panel follow the instructions below.

12 Assembly of the housing for scanner

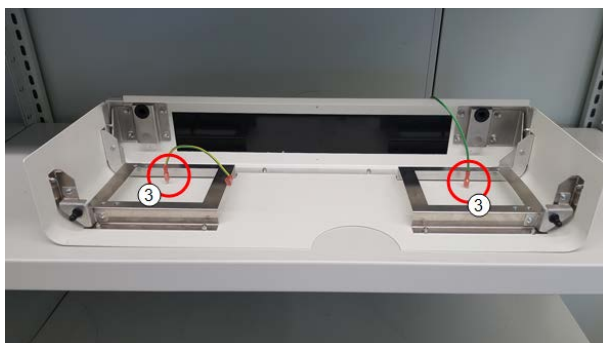
On the VS200 scanner you find two quick lock sockets(1) and two quick lock pins (2).



On the panel itself you find the corresponding parts; two quick locks sockets (1) and two quick lock pins (2).



1. To make the assembly easier connect the two grounding flags already to the grounding plugs (3) of the top panel.



2. Open the front door and put the short top panel parallel on the scanner.



3. Gently push it towards the back of the system until the pins fit into the quick lock sockets.



4. In case you use a U-FFWO make sure that the cable is guided through the housing like in the image below.



» If the top panels are mounted correctly, it should look like this:



5. Connect the two grounding flags to their counter plugs on the right and left side like shown in the image below.



Left side

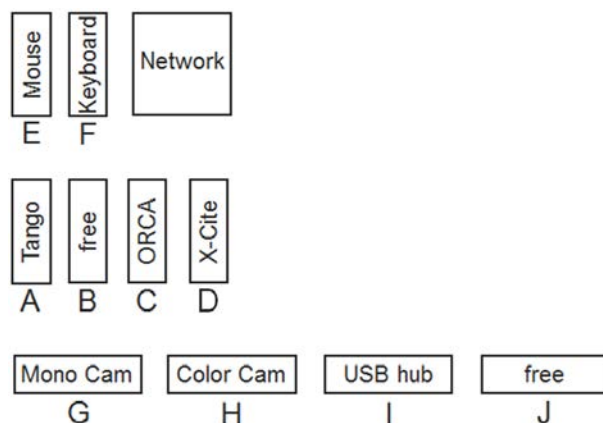


Right side

13 Cabling

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

The VS200 PC has a label on its backside indicating where to plug in the individual cables.



It is important to connect all cables according to the connection scheme as otherwise components might not work correctly.



Please refer to the following table:

Cable	Type	Location	PC position
VS-364M (s/w)	USB 3.0	Top of camera	G
Color camera	USB 3.0	Back of VS200	H
Orca Flash/Fusion	USB 3.0	Top of camera	C
DC Power In	Power supply	Back of VS200	Power socket
USB 2.0 Tango	USB 2.0	Back of VS200	A

USB 2.0 Hub	USB 2.0	Back of VS200	I
X-Cite Turbo	USB 2.0	Back of xCite Turbo	D
X-Cite Turbo	Power cord	Back of xCite Turbo	Power socket
Xylis	USB 2.0	Back of Xylis	D
Xylis	Power cord	Back of Xylis	
U-FFWR	CAN Bus	VS200 internal	See chapter Fluorescence filter wheels or camera adapter for monochrome camera auf Seite 45.
U-FFWO	CAN Bus	VS200 internal	
HP LCD screen	Display port	Bottom of LCD screen	
HP LCD screen	Power cord	Bottom of LCD screen	Display port
HP mouse	USB 2.0		E
HP keyboard	USB 2.0		F

14 Assembly of the loader housing

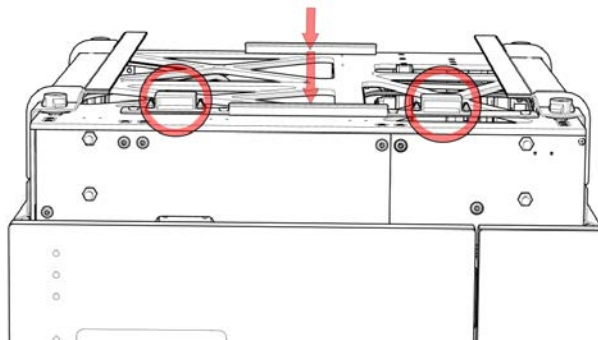
The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

The VS200 loader is shipped with the two side panels already mounted. Follow the order of panel mounting as described in the chapter below.

14.1 Top panel

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

1. Place the top panel over the system.



1. Attach the two grounding flags at the backside of the loader to the connectors of the panel like shown in the image below.
2. Position the panel so that it sticks out approximately 1.5 cm at the front.
3. Push it to the back until you hear a "click".

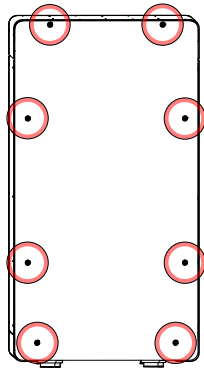
14.2 Back panel

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

The back panel is fixed with 8 knurled screws.

1. Center the back panel on the loader and start by tightening the middle knurled screws.

2. Subsequently tighten all other knurled screws.



14.3 Front panels

The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

1. Mount the horizontal and vertical front panel as described in the following steps.

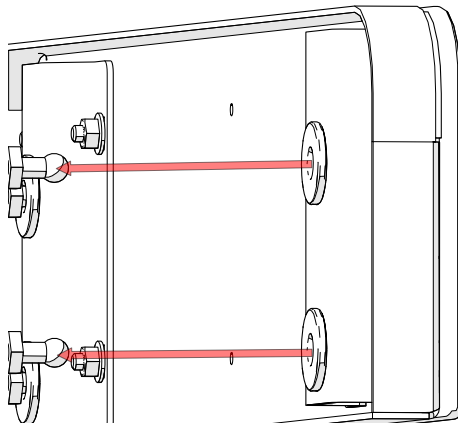
Before



After



2. Connect the two grounding flags to the horizontal panel and push the panel towards the system so that the quick lock sockets of the panel fit onto the quick lock pins of the loader.



3. Connect the grounding flag to the vertical panel and push the panel towards the system so that the quick lock sockets of the panel fit onto the quick lock pins of the loader.

15 Verbindung VS200 Scanner und VS200 Loader

15.1 Mechanical Connection VS200 scanner and VS200 loader

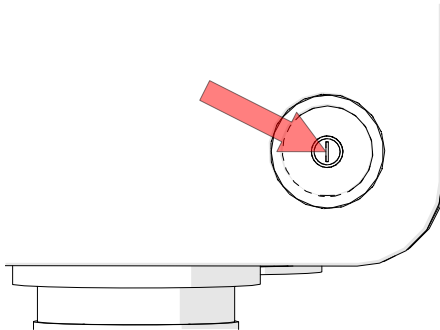
The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

This chapter describes the mechanical connection between the VS200 scanner and the VS200 loader.

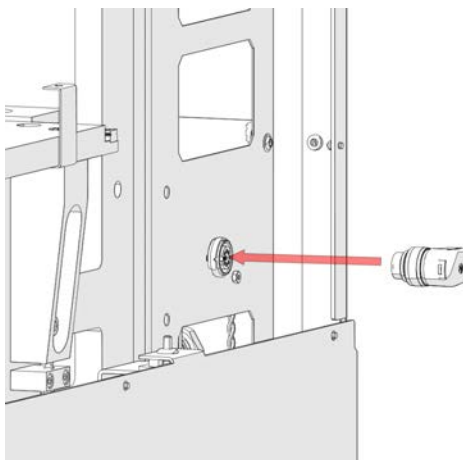


» Hex screwdriver (size 5 mm)

1. Switch the VS200 system off using the main power switch and disconnect the system from the power supply.



2. Place the VS200 loader to the right of the VS200 scanner, leaving a small gap between them.
3. Remove the handles from the right side of the VS200 scanner and from the left side of the VS200 loader.
4. Remove the jumper plug on the VS200 scanner.
5. Plug the VS200 loader's control cable into the port on the VS200 scanner where the terminator was. The plug should point towards the back.



15 Verbindung VS200 Scanner und VS200 Loader

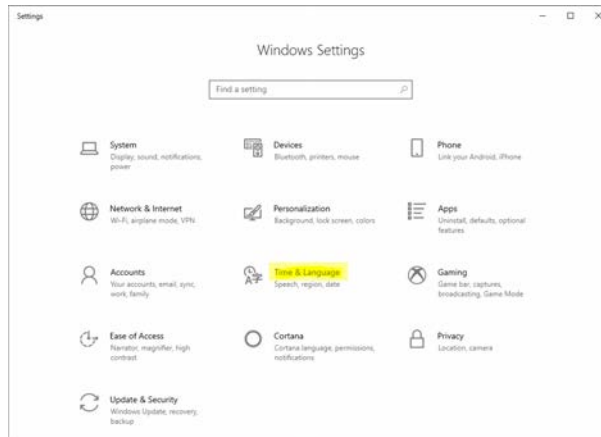
6. Push the VS200 loader onto the connector on the VS200 scanner.
7. Tighten the 2 hex screws (size 5 mm) which attach the connector of the VS200 scanner to the VS200 loader.
8. Remove the remaining handles from the VS200 scanner and the VS200 loader.
9. Reconnect the VS200 system to the power supply.

16 PC operating system language

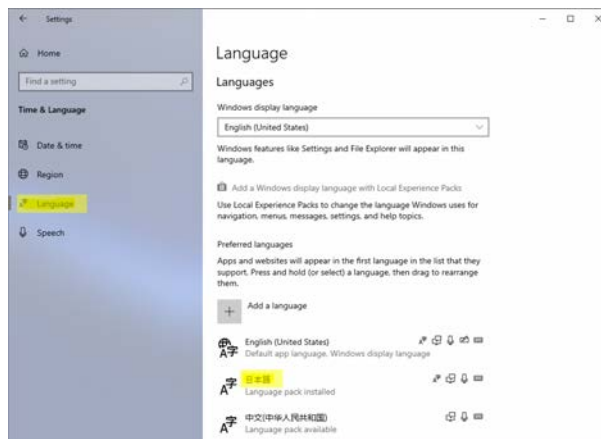
If you want to change the language of the operating system follow the instructions below.

- ✓ Japanese and Chinese are pre-installed on the VS200 PC.

1. Open the Windows Settings and select [Time & Language].



2. Click on the language you would like to use.

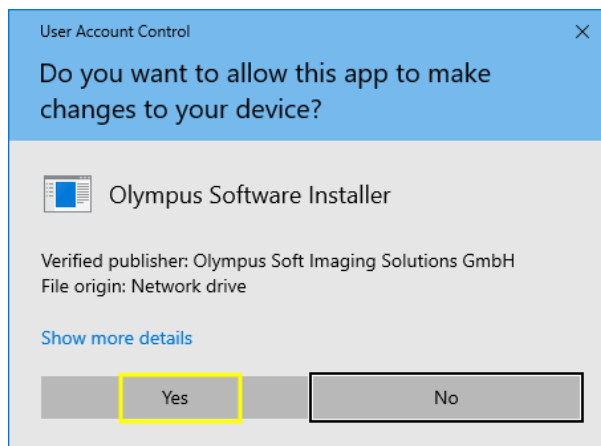


17 VS200 ASW software setup

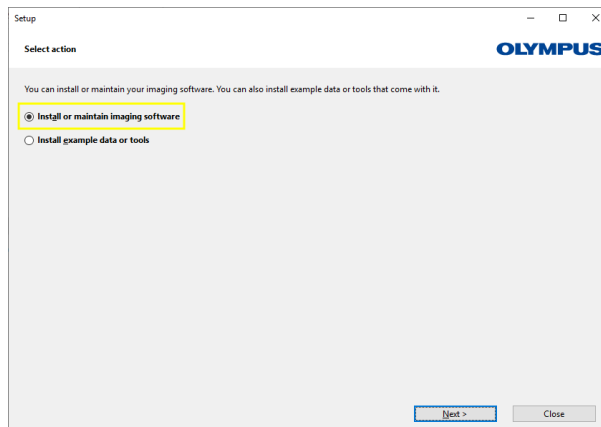
The units described below must be assembled and adjusted by Olympus. If these units are assembled or adjusted by the customer, the operations are not ensured.

This chapter describes the installation of VS200 ASW on a VS200 system PC.

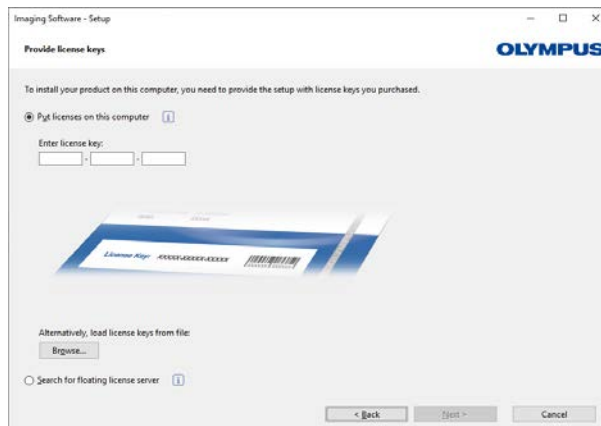
1. Turn on the PC.
2. To start the setup process, go to D:\OLYMPUS_SERVICE_ONLY_DO_NOT_DELETE\SetupMain\ and run the Setup.exe.
3. Click [Yes] to allow changes to the PC device.



4. Select the [Install or maintain imaging software] option and proceed with [Next].



5. To provide the licenses open the envelope of the license cards and enter the license keys. You might have more than one license key depending on the configuration of your kit.



Available license keys are:

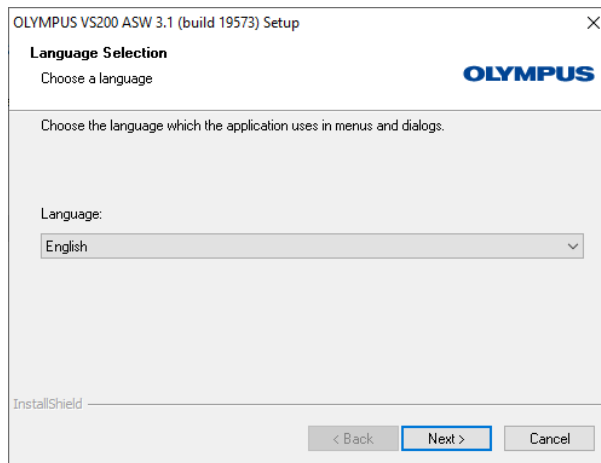
- » VS200 ASW 3.1
- » VS-FLUO
- » VS-CNV

6. Accept the license agreement.

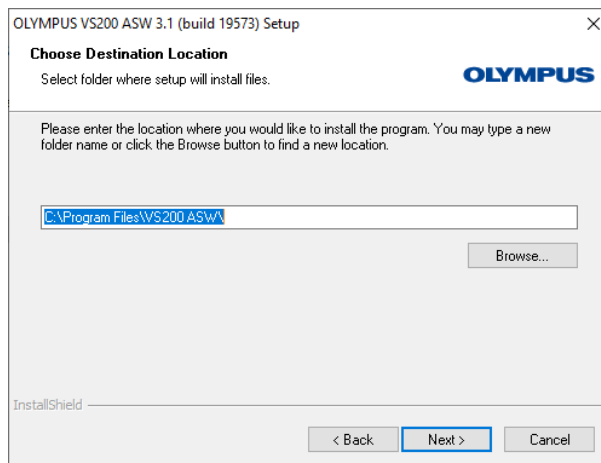
To activate the licences at customer site the PC needs internet access. If no internet access is available the licences can also be activated offline. In this case follow the instruction during the activation process.



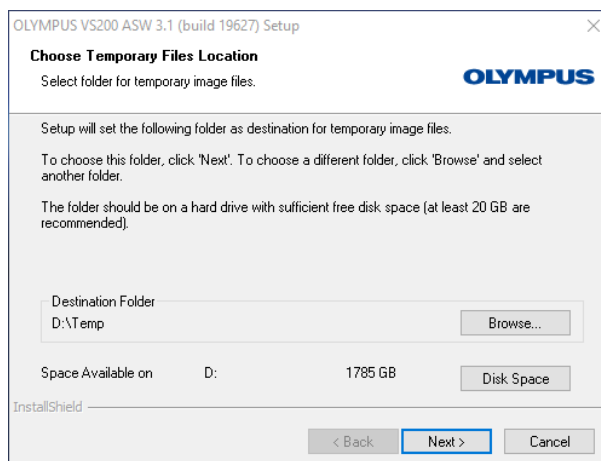
7. Change language (English is default). Proceed with [Next].



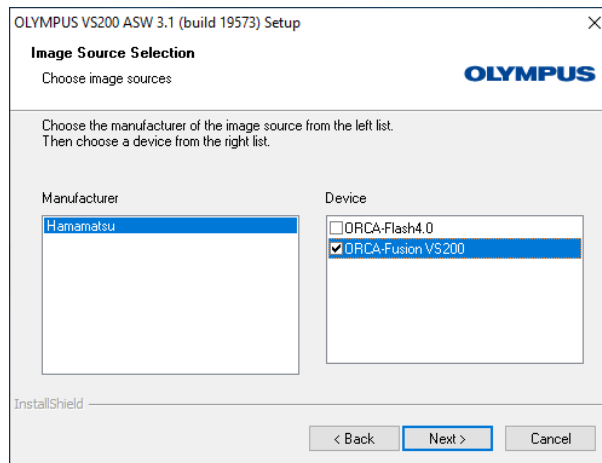
8. Change installation location (not recommended). Proceed with [Next].



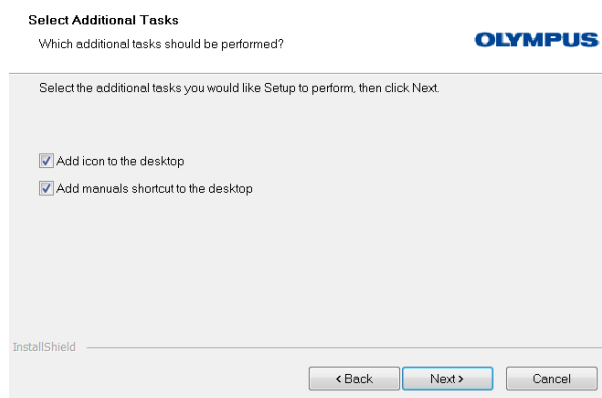
9. A change of the temporary file location (D:\Temp) is not recommended. Proceed with [Next].



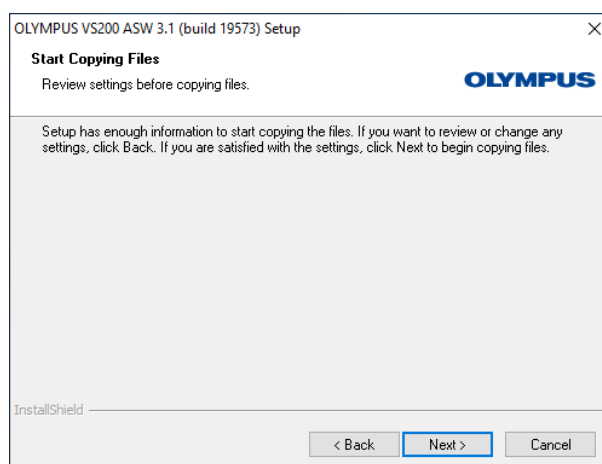
10. If your kit includes a different monochrome camera than the IDS-VS-304M select either ORCA-Flash4.0 or ORCA-Fusion VS200 and proceed with [Next].



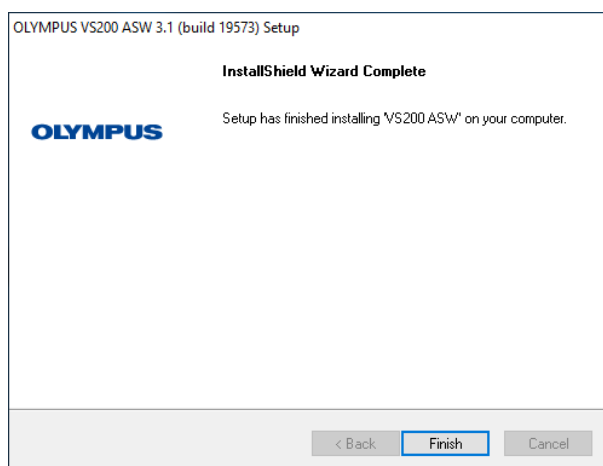
11. Select [Add icon to the desktop] and [Add manuals shortcut to the desktop] and proceed with [Next].



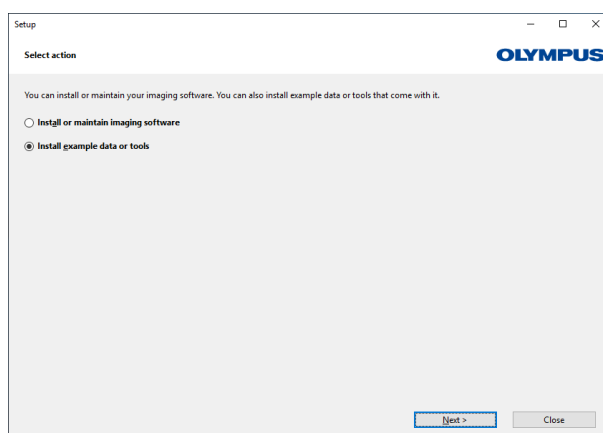
12. Start setup by clicking [Next].



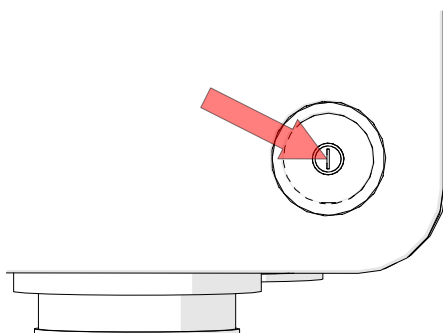
13. Finish the setup process by clicking the [Finish] button.



14. In the following dialog box, click the [Close] button and do not install any example data or tools.



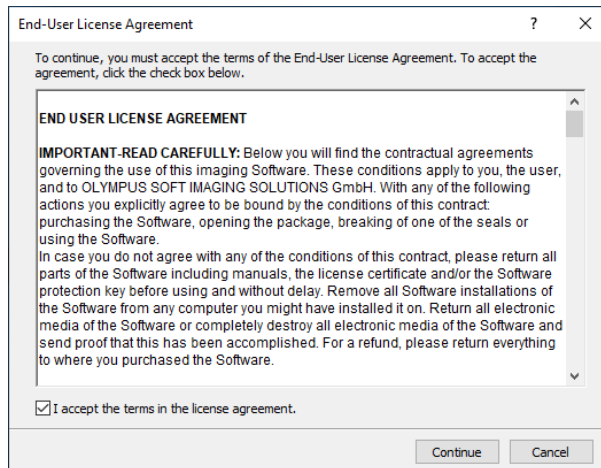
15. Turn on the VS200 system.



16. To start the software double-click the VS200 ASW icon.



17. At the first start agree to the End-User License Agreement and proceed with [Continue].



- » The following splash screen is displayed while the VS200 system is initializing.



The initialization process might need up to two minutes.

Error messages

- » If you see the error message below once the software is up and running please refer to [Troubleshooting auf Seite 179](#).

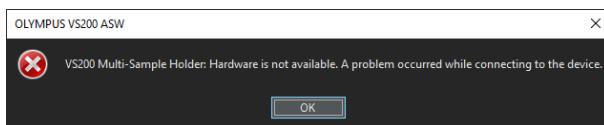


The system cannot operate in the current state.



In most cases this message occurs because you are using a wrong device configuration. Refer to chapter [VS200 device configuration auf Seite 85](#) to change or adapt the VS200 device configuration.

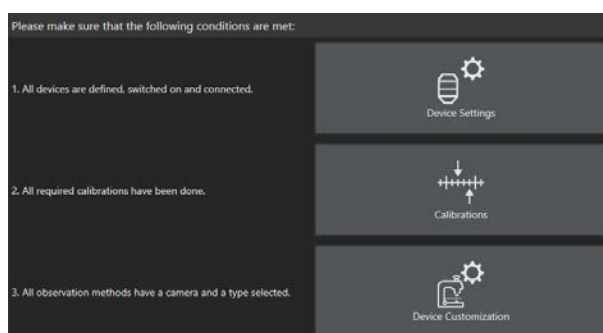
- » If you see the following error message it means that you are using a VS200 loader which is not yet configured in the device list.



Refer to chapter [VS200 device configuration auf Seite 85](#) to add the loader to the system configuration.

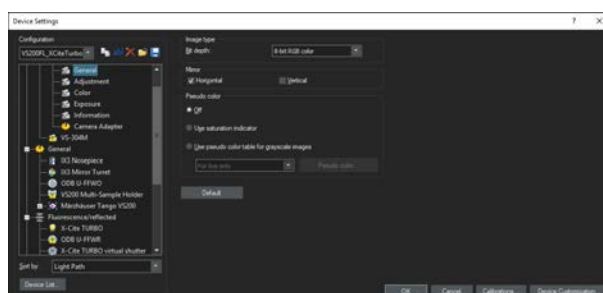
18 VS200 device configuration

1. On the start page of the software click the [Device Settings] button.

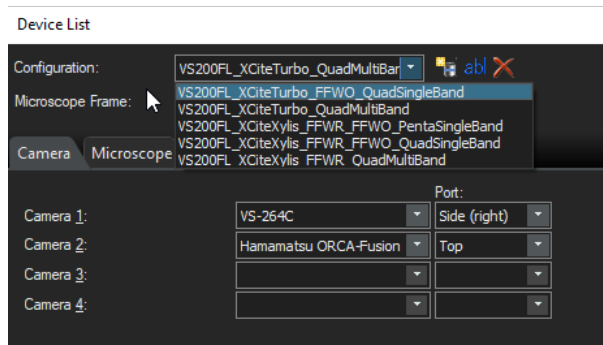


» The software will automatically switch to the [Manual control] layout and open the [Device Settings] dialog box.

2. In the [Device Settings] dialog box click on the [Device List] button to open the [Device List] dialog box.

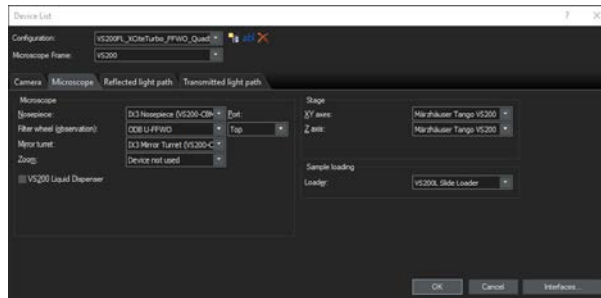


3. VS200 ASW offers five predefined device configurations to choose from. Depending on the configuration of your VS200 kit (FL light source, fast filter wheels and filter set) select one of the five.



If you have a VS200 brightfield system there is only one (VS200) device configuration available.

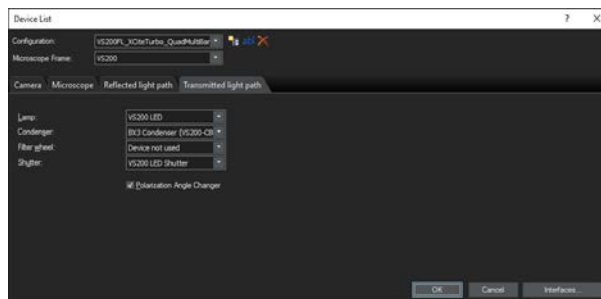
- If you are using the VS200 loader select the [Microscope] tab and select in the [Sample loading] list the [VS200 MTL Slide Loader] entry.



18.1 Activate the motorized polarizer

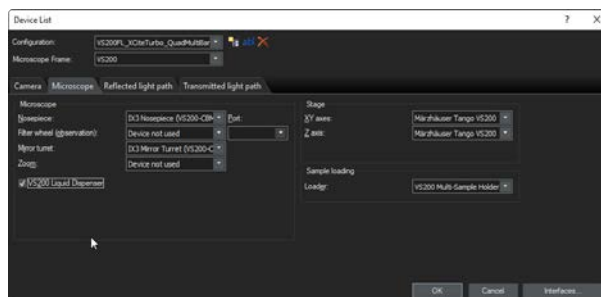
All VS200 SLIDEVIEW systems are equipped with a polarization angle changer. By default the functionality of the motorized polarizer is switched off.

- Use the [Acquire] > [Devices] > [Device List] command to open the [Device List] dialog box.
- Select the [Transmitted light path] tab and select the [Polarization Angle Changer] check box.



18.2 Activate the VS200 liquid dispenser

- Use the [Acquire] > [Devices] > [Device List] command to open the [Device List] dialog box.
- Select the [Microscope] tab.
- Make sure that the check box [VS200 Liquid Dispenser] is selected.



18.3 Device settings - objectives

A VS200 SLIDEVIEW kit is supplied with a 2x and a 20x objective ex-works. However, the predefined device configuration already contains a 2x, 4x, 10x, 20x and 40x objective.

You need to delete the objectives that are not installed from the nosepiece settings in the [Device Settings] dialog box.

Open the [Device Settings] dialog box

1. Use the [Previously Used Layout]  button to go to a different layout. You can find the [Previously Used Layout] button at the top right in the navigation bar on the software's start page.
2. At the top right, on the menu bar click the [Manual control] button.
3. Select the [Acquire] > [Devices] > [Device Settings] command to open the [Device Settings] dialog box.

Configuring objectives

1. Select the [IX3 nosepiece] entry on the left side and set all objectives that are not installed to the status [Free].

Beispiel

Before

Pos.	Magnification:	Objective Type:	Description:	NA:	Refraction Index:	WD (mm):
1	2	PLN	2x	0,06	AIR (1,000)	5,8
2	20	UPLXAPO	20x	0,8	AIR (1,000)	0,6
3	10	UPLXAPO	10x	0,4	AIR (1,000)	3,1
4	Free			0,001		...
5	Free			0,001		...
6	4	UPLFLN	4x	0,13	AIR (1,000)	17

After

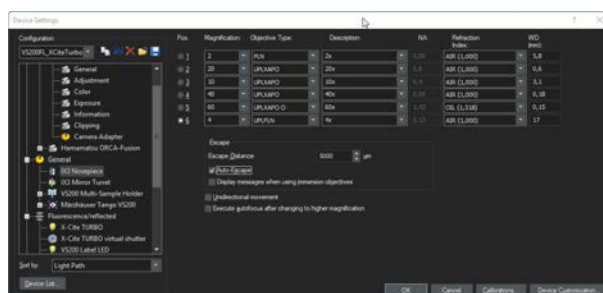
Pos.	Magnification:	Objective Type:	Description:	NA:	Refraction Index:	WD (mm):
1	2	PLN	2x	0,06	AIR (1,000)	5,8
2	20	UPLXAPO	20x	0,8	AIR (1,000)	0,6
3	Free			0,001		...
4	Free			0,001		...
5	Free			0,001		...
6	Free			0,001		...

2. To add a phase contrast objective select the [Magnification] entry and the correct [Objective Type] entry for e.g. position 5 and add e.g. [PH] in the [Description] field to distinguish between 'normal' 20x and 'PH' 20x.

Beispiel

Pos.	Magnification:	Objective Type:	Description:	NA:	Refraction Index:	WD (mm):
1	2	PLN	2x	0,06	AIR (1,000)	5,8
2	20	UPLXAPO	20x	0,8	AIR (1,000)	0,6
3	10	UPLXAPO	10x	0,4	AIR (1,000)	3,1
4	40	UPLXAPO	40x	0,95	AIR (1,000)	0,18
5	20	UPLFLN PH	20x PH	0,5	AIR (1,000)	2,1
6	4	UPLFLN	4x	0,13	AIR (1,000)	17

- » Refer to chapter [Setup phase contrast \(PH\) observation method auf Seite 92](#) to adjust the [Device Customization] dialog box for phase contrast acquisition.
- 3. In case you want to install and configure an immersion objective please also check that the [Auto-Escape] function is checked.



- 4. In the [Device List] dialog box make sure that the [VS200 Liquid Dispenser] check box is selected. See [Activate the VS200 liquid dispenser auf Seite 86](#).

18.4 Device settings - filter

If you add new hardware, like a new fluorescence filter, to the VS200 system you need to configure it in the [Device Settings] dialog box.

Open the [Device Settings] dialog box

1. Use the [Previously Used Layout]  button to go to a different layout. You can find the [Previously Used Layout] button at the top right in the navigation bar on the VS200 ASW software's start page.
2. At the top right, on the menu bar click the [Manual control] button.
3. Select the [Acquire] > [Devices] > [Device Settings] command to open the [Device Settings] dialog box.

Configuring filters

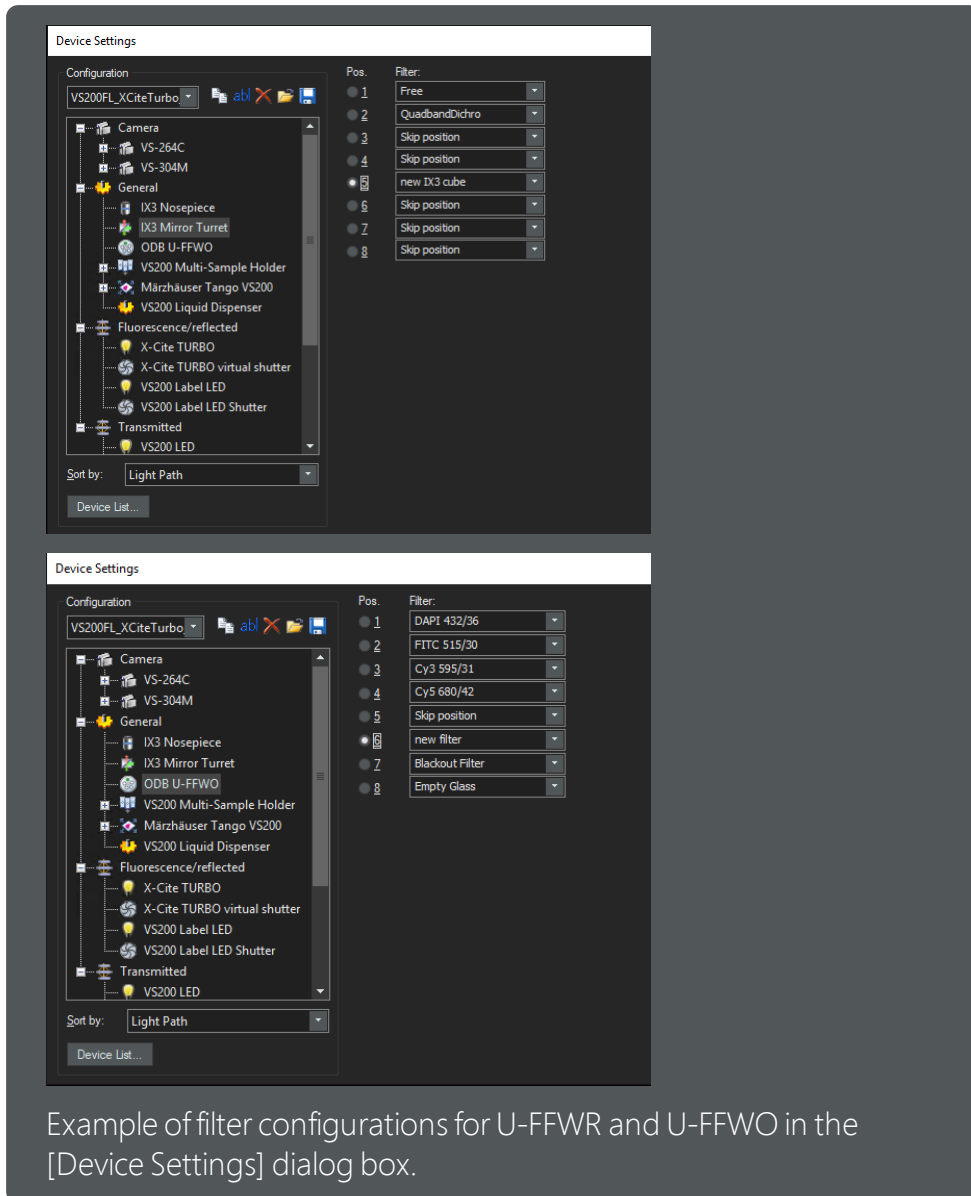
1. On the left of the tree structure, select the device into which you placed the filter.

The following table shows the possible filter and device combinations.

Filter type	VS200 device
IX3 filter cube	IX3 Mirror turret
25 mm excitation filter	U-FFWR
25 mm emission filter	U-FFWO

2. In the [Pos.] options, select the position where you inserted the new filter.

3. Type in the name of the filter in the [Filter] field.



4. Add additional filters if required by selecting the appropriate position and selecting the name of the filter.
5. Click the [OK] button to save the changes.
6. Subsequently you have to configure an observation method in the [Device Customization] dialog box to be able to use the new filter. See [Create or adjust an observation method auf Seite 95](#).

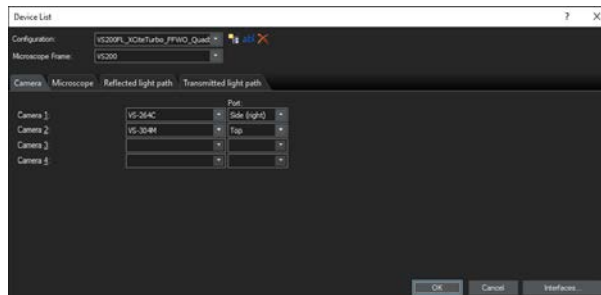
18.5 Manual device configuration

This chapter describes the manual configuration of VS200 hardware devices.

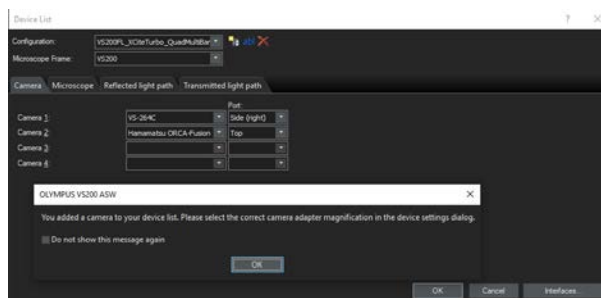
18.5.1 ORCA monochrome camera

If your VS200 kit contains an ORCA Flash 4.0 or ORCA Fusion VS200 camera you need to manually add it to the device list as those two cameras are not part of the default setup.

1. Open the [Device List] dialog box and go to the [Camera] tab.



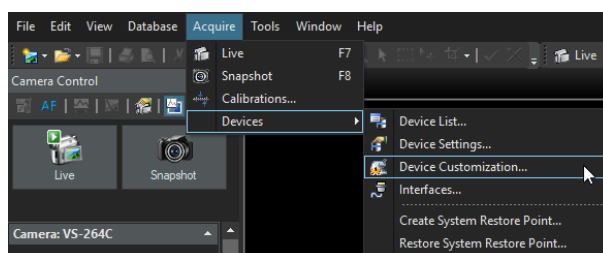
2. In the [Camera 2] list select either the ORCA Flash 4.0 or ORCA Fusion VS200.
3. Make sure that the correct camera adapter magnification (1.0x) is selected in the [Device Settings] dialog box. To open the [Device Settings] dialog box use the [Acquire] > [Devices] > [Device Settings] command.



As none of the ORCA cameras are part of the default device configurations each observation method uses an ORCA camera needs to be adjusted manually. See [Device customization auf Seite 90](#) for further information.

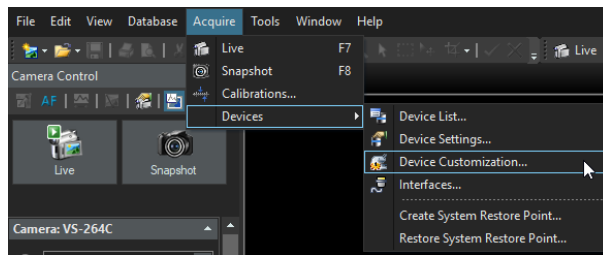
18.6 Device customization

In the [Device Customization] dialog box you can make changes to existing observations methods. For example, you can add a different monochrome camera or you can add new observation methods.

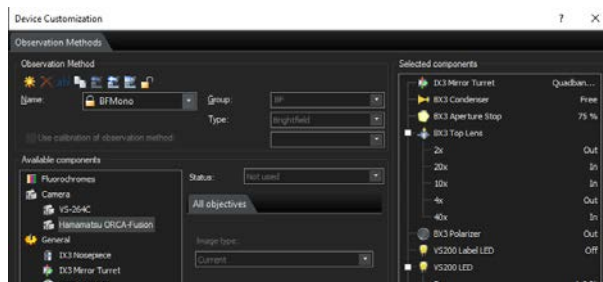


18.6.1 ORCA camera adjustments

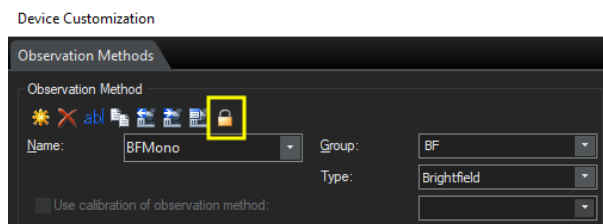
1. Use the [Acquire] > [Devices] > [Device Settings] command to open the [Device Settings] dialog box.



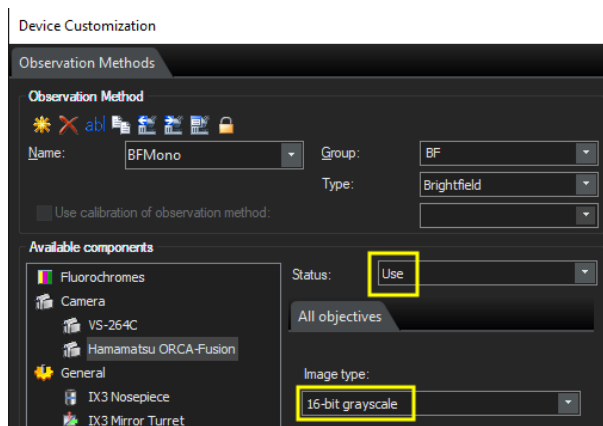
2. Select the [BFMono] observation method (OM).



3. Unlock the [BFMono] observation method by clicking on the lock icon.



4. In the [Status] picklist, set the Orca camera to the status [Use].
5. In the [Image type] picklist, change the [Current] entry to the [16-bit grayscale] entry.



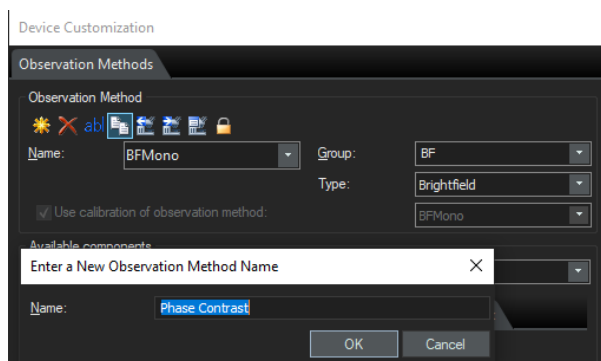
6. Do this for all other mono camera-related observation methods.

- Set the correct VS200 LED lamp voltages for the individual objectives. Refer to chapter [VS200 LED lamp voltages auf Seite 97](#) for detailed information.

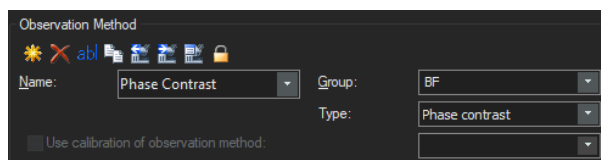
18.6.2 Setup phase contrast (PH) observation method

If you want to add a phase contrast observation method do the following:

- Select the [Acquire] > [Devices] > [Device Customization] command to open the [Device Customization] dialog box.
- Select the [BFMono] observation method.
- Use the [Copy Observation Method] button  to make a copy of the observation method.
- Type in a name, e.g. "Phase Contrast".

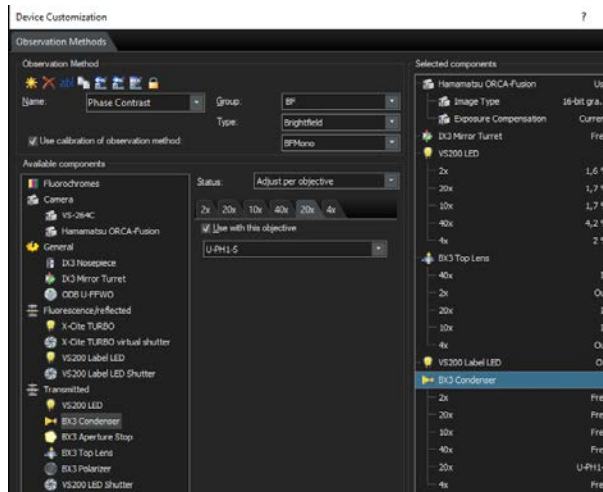


- In the [Type] picklist select [Phase Contrast].



- Select the [BX3 Condenser] entry from the available components and choose the [Adjust per objective] entry in the [Status] pick list.

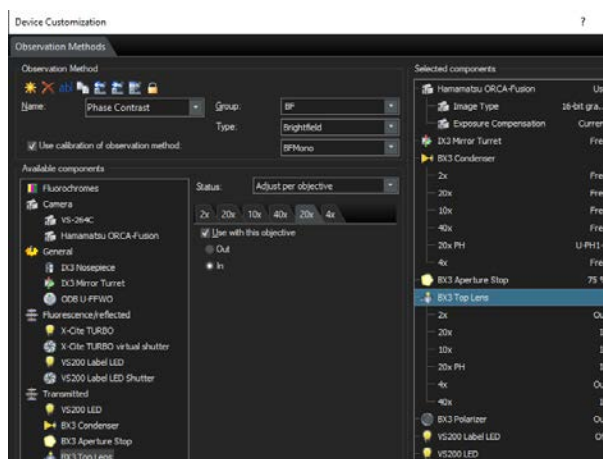
7. Select the e.g. 20x phase contrast objective and select the [Use with this objective] check box.



Refer to the following table for the correct assignment of the different phase contrast inserts to the correct magnification:

Objective magnification	BX3 condenser PH insert
10x	U-PH1-S
20x	U-PH1-S
40x	U-PH2-S
60x	U-PH3-S
100x	U-PH3-S

8. Select the [BX3 Top Lens] entry from the [Available components] and select the [Top Lens] > [In] option for the 20x PH objective.

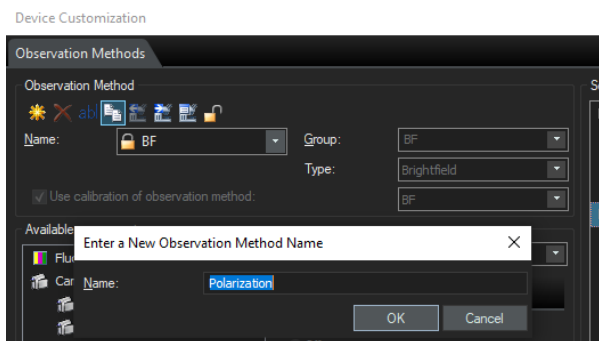


Refer to chapter [VS200 LED lamp voltages auf Seite 97](#) for the correct lamp voltages for phase contrast acquisition.

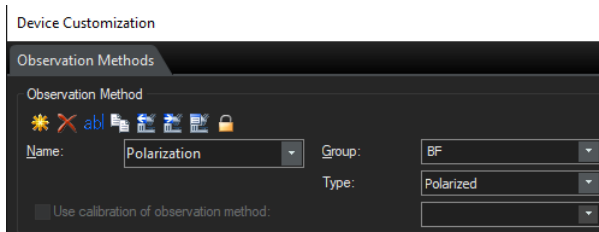
18.6.3 Setup polarization (Pol) observation method

If you want to add a polarization observation method do the following:

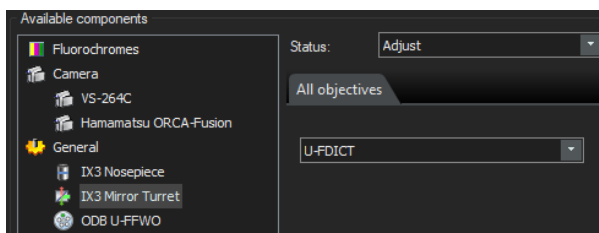
1. Select the [Acquire] > [Devices] > [Device Customization] command to open the [Device Customization] dialog box.
2. In the [Device Customization] dialog box select the [BF] observation method.
3. Use the [Copy Observation Method] button  to make a copy of the observation method.
4. Type in a name, e.g. Polarization.



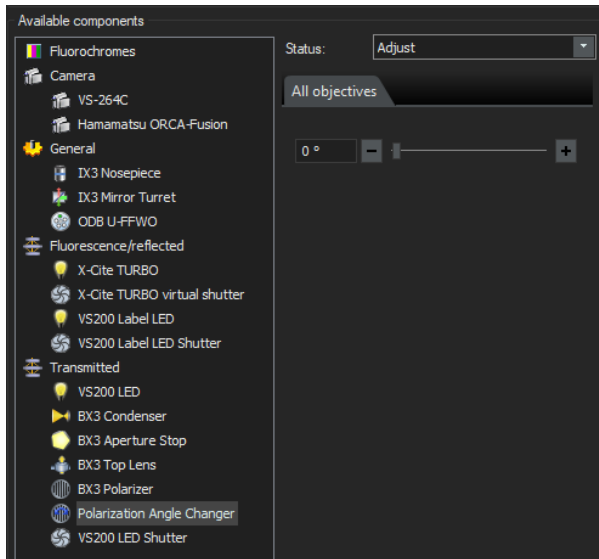
5. In the [Type] picklist select [Polarized].



6. Select the [IX3 Mirror Turret] entry from the available components and choose the [Adjust] entry in the [Status] pick list.
7. In the [All objectives] tab select the [U-FDICT] analyzer for all objectives.



8. Select the [[Polarization Angle Changer](#)] entry from the available components and choose the [[Adjust](#)] entry in the [[Status](#)] pick list.



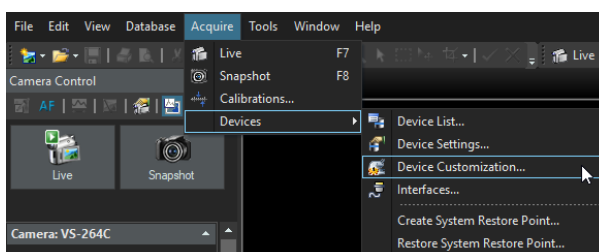
9. Select the [[BX3 Polarizer](#)] and set the Status to [[Use](#)].
10. Use the slide control to rotate the motorized polarizer or enter a defined angle value in the field.

18.6.4 Create or adjust an observation method

The easiest way to create a new observation method (OM) e.g. for fluorescence image acquisition is to copy an existing one and adjust the settings according to your needs in the [[Device Customization](#)] dialog box.

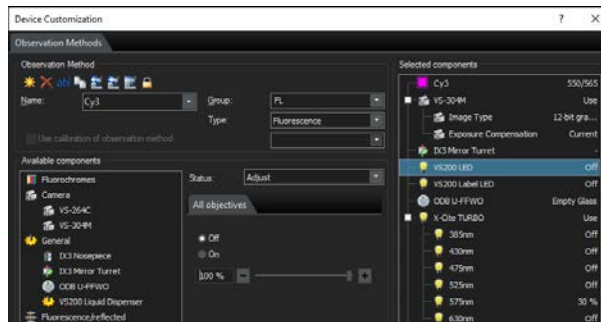
Open the [[Device Customization](#)] dialog box

1. Use the [[Previously Used Layout](#)]  button to go to a different layout. You can find the [[Previously Used Layout](#)] button at the top right in the navigation bar on the VS200 ASW software's start page.
2. At the top right, on the menu bar click the [[Manual control](#)] button.
3. Use the [[Acquire](#)] > [[Devices](#)] > [[Device Settings](#)] command to open the [[Device Settings](#)] dialog box.

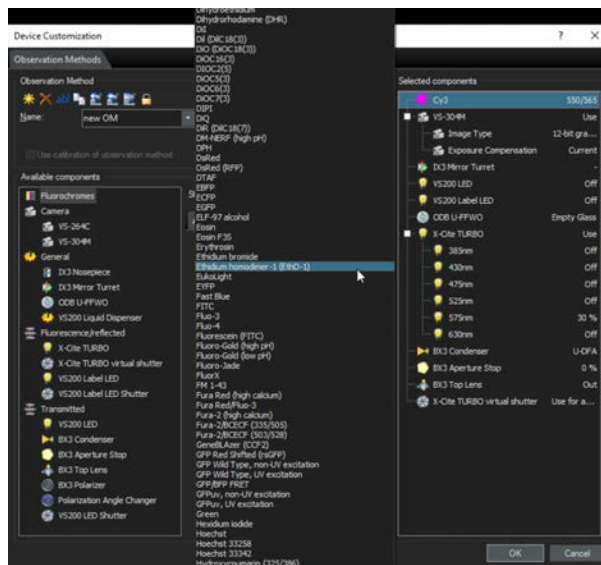


Configuring an observation method

1. Select an observation method (e.g. CY3) in the [Name] list. This list contains all of the observation methods that have already been defined.



2. Click the  [Copy Observation Method] button to create a copy of the observation method.
3. Enter a name for the observation method in the [Enter a New Observation Method Name] dialog box.
4. In the [Available Components] list select the [Fluorochromes] entry.
5. Select the [Use] entry from the [Status] list.
6. In the [Fluorochrome] list select the fluorochrome that fits to your new filter combination.



7. In the [Available Components] list select the [ODB U-FFWO] entry.
8. Select the new filter you have added.
9. Do the same if you e.g. added a new excitation filter for the ODB U-FFWR or a new IX3 filter cube in the IX3 Mirror Turret.
10. Click [OK] to save the changes.
11. As you created a new observation method you now have to carry out the

shading correction. See [Shading correction for fluorescence observation methods auf Seite 160](#).

18.7 VS200 LED lamp voltages

18.7.1 Orca Flash 4.0 voltages (%)

	Observation method		
Objective	BFMono (AS 75%)	DFMono (AS max)	PHMono (AS 75%)
2x PLN	0.6	not defined	not defined
4x UPLFLN	0.6	-	not defined
10x UPlanXApo	0.8	-	-
20x UPlanXApo	0.5	not defined	-
40x UPlanXApo	0.7	not defined	-
40xUplanXApoS			
60x UPlanXApoO	-	not defined	-
100x UPlanXApoO	-	not defined	-

18.7.2 Orca Fusion voltages (%)

	Observation method		
Objective	BFMono (AS 75%)	DFMono (AS max)	PHMono (AS 75%)
2x PLN	1.8	not defined	not defined
4x UPLFLN	1.2	100	not defined
10x UPlanXApo	1.8	100	60
20x UPlanXApo	2.1	not defined	100
40x UPlanXApo	5.7	not defined	100
40xUplanXApoS		not defined	100
60x UPlanXApoO	6.8	not defined	100
100x UPlanXApoO	2.3	not defined	100

18.7.3 VS-304M voltages (%)

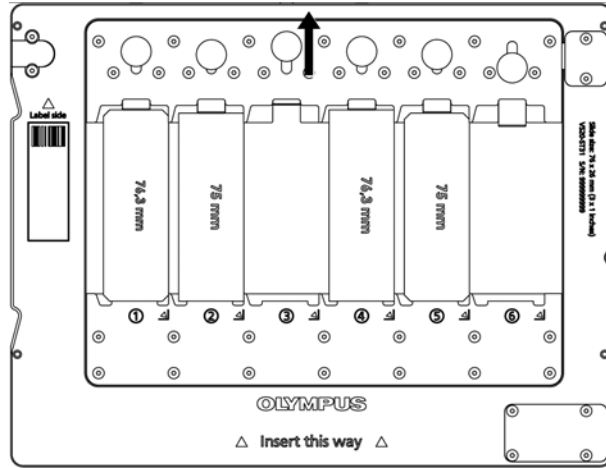
Objective	Observation method		
	BFMono (AS 75%)	DFMono (AS max)	PHMono (AS 75%)
2x PLN	1.6	ND	ND
4x UPLFLN	2.0	100	ND
10x UPlanXApo	1.7	100	-
20x UPlanXApo	1.7	not defined	100
40x UPlanXApo	4.2	not defined	100
40xUplanXApoS			
60x UPlanXApoO	-	not defined	100
100x UPlanXApoO	-	not defined	100

18.7.4 VS-264C voltages (%)

Objective	Observation method		
	BF (AS 75%)	DF (AS max)	POL (AS 75%)
2x PLN	60	not defined	100
4x UPLFLN	100		100
10x UPlanXApo	65		100
20x UPLXAPO	64	not defined	100
40x UPLXAPO	100	not defined	100
40x UPlanXApoS	100	not defined	100
60x UPLXAPO	100	not defined	100
100x UPLXAPO	100	not defined	100

19 How to insert a slide into a tray

1. To insert a slide into a tray push the button on the tray away from the slide pocket to open.



2. Hold the button in place and put a slide into the slide pocket with the label facing the top as indicated on the tray [Label side].
3. Push the slide to left side and release the button.

19.1 How to insert a tray into the VS200 scanner



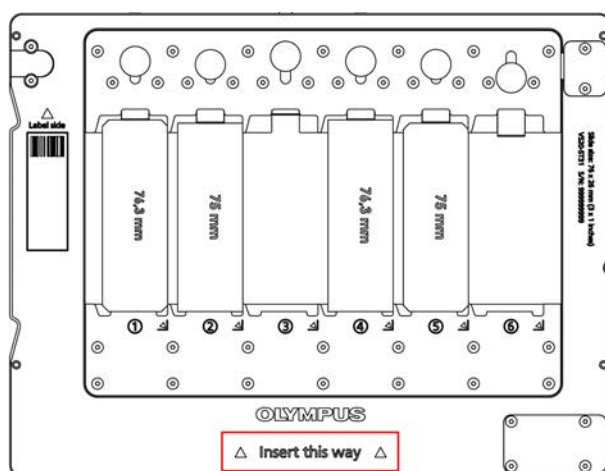
CAUTION

Quetschgefahr beim Einsetzen der Trays in den VS200 Scanner

Durch den motorisierten Antrieb der Einschubklappe am Scanner besteht Quetschgefahr. Hände und Finger können beim Einsetzen der Trays gequetscht werden.

- Achten Sie darauf, dass keine Funktionen in der VS200 ASW Software ausgeführt werden, während Sie den Einschub einsetzen.

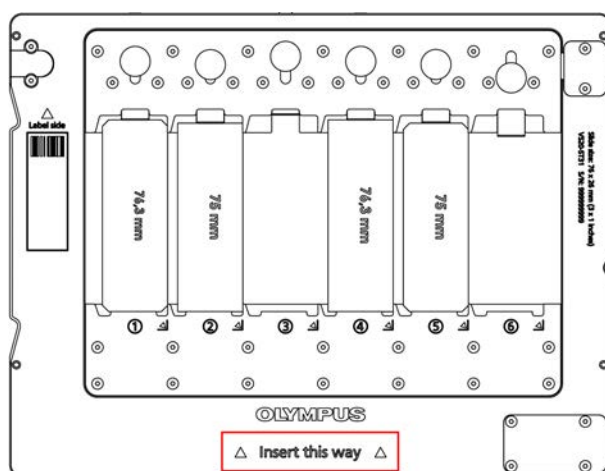
1. To insert a tray into the VS200 scanner use the [Exchange Trays] function of the VS200 ASW software to open the flap door.
2. Insert the tray horizontally following the orientation which is printed on the tray: [Insert this way] into the rails and push it inside (about 6cm) until you cannot push it any further.



3. Click the [Close] button to close the flap door and the exchange dialog.

19.2 Insert a tray into the VS200 loader

1. To insert a tray into the VS200 loader use the [Exchange Trays] function of the VS200 ASW software to drive the loader into the loading/unloading position. Click the [Exchange Trays] button on the start page of the VS200 ASW.
2. Open the loader door and insert the tray horizontally following the orientation which is printed on the tray ([Insert this way]) into an empty position.



3. Push it all the way in until the tray indicator LED on the left side is green.
4. Close the loader door and click the [Lock Door] button in the VS200 ASW software.
5. Either use [Select Slide for Calibration] on the start page of the software to select a slide and tray for calibration or select any scan mode to select and load a tray into the scanner.

20 Calibrate VS200 using the Olympus Calibration Slide

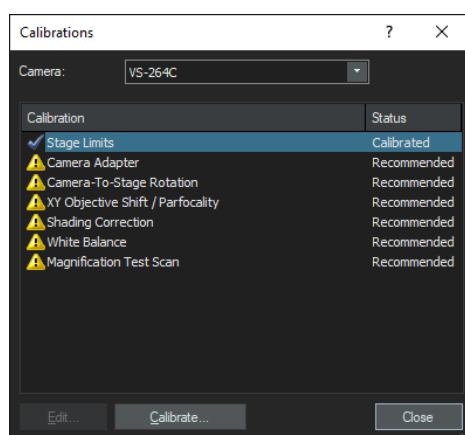
This chapter describes how to calibrate a VS200 SLIDEVIEW System.



» 3 mm hex key with ball end



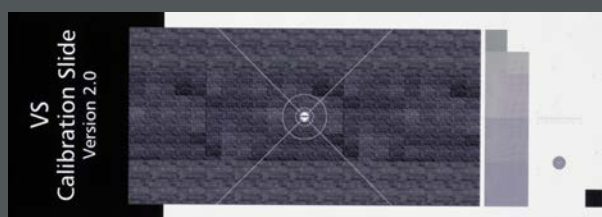
The VS200 ASW software offers a dedicated calibration wizard for all necessary calibrations.



The image shows the [Calibrations] dialog box.

In order to get optimal results, we recommend using the VS Olympus Calibration Slide v2.0 to calibrate the system.

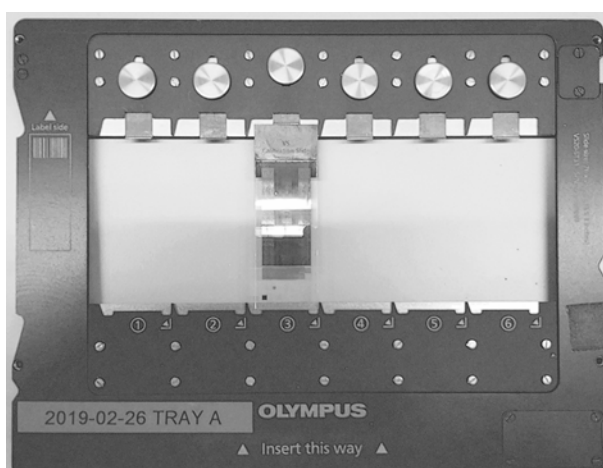
Layout of the Calibration Slide (Version 2.0)



The image shows the layout of the VS Olympus Calibration Slide v2.0. Always insert it with the label-area (left side) towards the defined label-area of the slide tray.

20 Calibrate VS200 using the Olympus Calibration Slide

1. Insert the VS-calibration slide into position 3 of the slide tray.



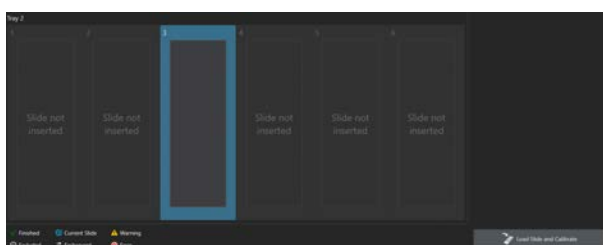
2. Click the [Exchange Trays] button on the start page of the VS200 ASW software to insert the tray.



3. Click the [Select slide for calibration] button.

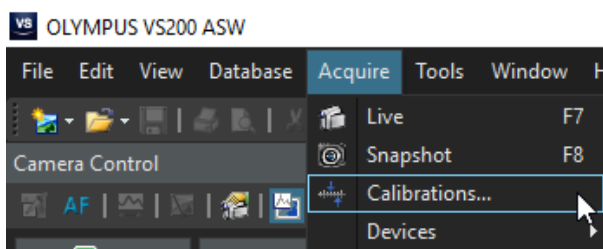


4. Load the tray (either manually or using the loader) by clicking the [Load Slide and Calibrate] button.



» The software switches to the [Manual control] layout.

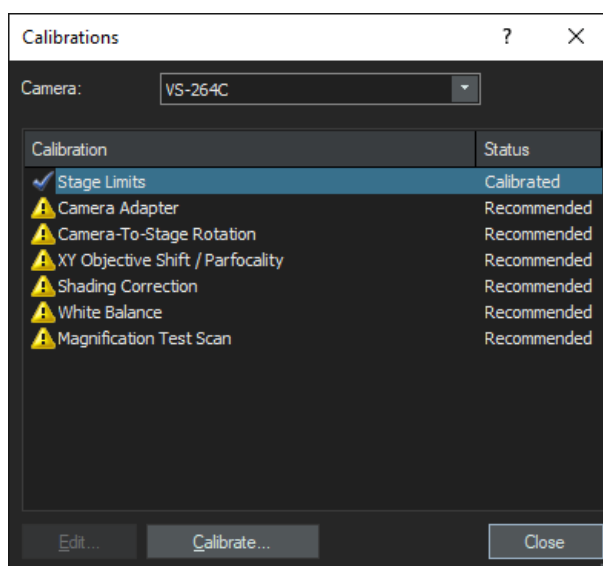
5. In the [Manual control] layout select the [Acquire] > [Calibrations] command.



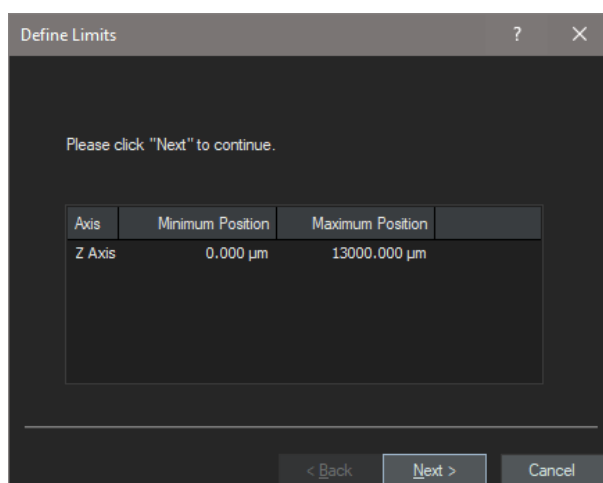
20.1 Stage limits - Z Axis

💡 The X and Y axes do not have to be calibrated again. However, the Z axis calibration is dependent on the glass slide thickness. Therefore it is necessary to calibrate the Z axis.

1. In the [Calibrations] dialog box select the [Stage Limits] entry and click the [Calibrate] button.

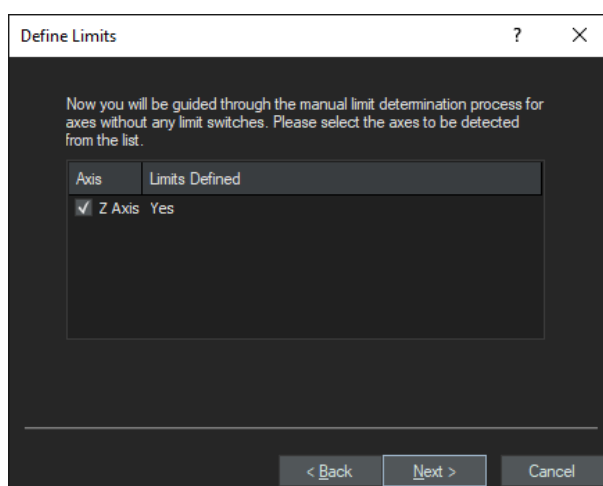


2. Proceed with [Next] and follow the instructions of the wizard.

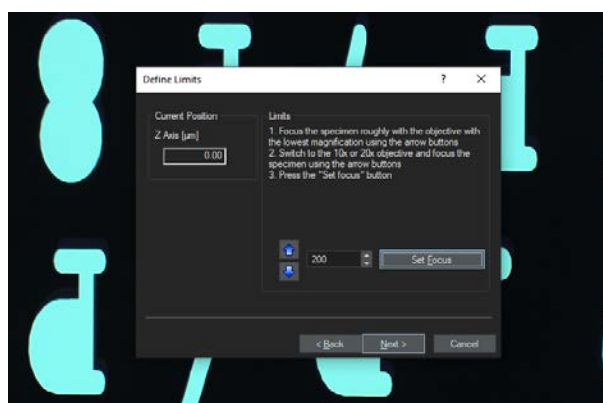


20 Calibrate VS200 using the Olympus Calibration Slide

3. Select the [Z Axis] check box and continue with [Next].



4. At the top right in the menu bar click the [Manual control] entry to switch the layout.
5. In the [Manual Control] layout, change to the 20x objective.
6. In the [Camera Control] tool window click the [Live] button to switch to live mode.
7. Use the stage navigator to move to the center of the slide.
8. Use the [Ctrl] + mouse wheel combination to focus the sample. If you have trouble getting the image into focus, use a lower magnification first.
9. Once the image is in focus click the [Set Focus] button.



- » Do not change the value for the Z-limit. The value should be 200.

20 Calibrate VS200 using the Olympus Calibration Slide

10. Click the [Finish](#) button to finalize the calibration process.

