OLYMPUS®

Instructions [Hardware]

VS120-S1
VS120-S5
VS120-L100

Virtual Slide System

S1:	**Single slide manual loading type**
S5:	**5 slides manual loading type**
L100:	**100 slides autoloader type**

Notice

- Thank you for purchasing the OLYMPUS Virtual Slide System.
  To ensure the safety, obtain optimum performance and familiarize yourself fully with the use of this system, we recommend that you study this manual thoroughly before operating this system.
- For the operating procedures for observation and acquisition, refer to [Simple Operation] of the attached CD-ROM and [Online Manual] of Software.
- Retain this instruction manual in an easily accessible place near the work desk for future reference.

AX8025

CE

Compliance

This device complies with the requirements of both directive **2004/108/EC** concerning electromagnetic compatibility and directive **2006/95/EC** concerning low voltage. The CE marking indicates compliance with the above directives.

Use in domestic area

EN61326-1 defines two categories according to the location for use.

Class A: Equipment suitable for use in establishments other than domestic, and those directly connected to a low voltage power supply network which supplies buildings used for domestic purposes.

Class B: Equipment for use in domestic establishments, and in establishments directly connected to a low voltage power supply network which supplies buildings used for domestic purposes.

This system is applied Class A. Some interference may occur if this system is used in domestic location.

Safety and EMC Precautions

1. Use only power cord which Olympus specifies. Otherwise the safety and EMC performance of the product can not be assured.
2. Be sure to ground the product. Otherwise our intended electric safety and EMC performance of the product can not be assured.

In accordance with European Directive 2002/96/EC on Waste Electrical and Electronic Equipment, this symbol indicates that the product must not be disposed of as unsorted municipal waste, but should be collected separately.
Refer to your local Olympus distributor in EU for return and/or collection systems available in your country.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC WARNING: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

CALIFORNIA USA ONLY

This controller uses a Lithium Battery which contains Perchlorate Material – special handling may apply, See

www.dtsc.ca.gov/hazardouswaste/perchlorate

CAUTION

Registered Trademarks

CONTENTS

Introduction

This system constructs a digitized high-resolution image of a part or whole of a slide glass specimen. Three different systems are provided according to whether slide glass specimens are transferred manually or automatically and the number of slide glass specimens transferrable at one time: (1) single slide manual loading type, (2) 5 slides manual loading type, and (3) 100 slides autoloader type.

Available instruction manuals:

Instruction manual	Main content
VS120-S1, VS120-S5, VS120-L100 [hardware] (this instruction manual)	Description of each main operating part, preparations before starting observations, and maintenance
[Simple operation]	Observation and image acquisition • [Simple operation] (CD-ROM) • [Online manual] (in VS120-ASW)
[Online manual]	
BX-UCB	About the microscope control box
U-UCD8A	About the motorized universal condenser

General precautions to be observed

If this microscope system is used in ways not specified in the instruction manual, safe operation cannot be guaranteed and the risk of a malfunction occurring will increase. Make sure that you use this microscope system by following the instructions given in this instruction manual.

The following symbols are used in this document to draw attention to important operating or handling precautions.

Symbol	Description
	A caution indicated by this symbol must be observed to prevent the user from suffering a personal injury and the merchandise (this microscope system and property in the immediate surroundings) from being damaged.
	A caution indicated by this symbol must be observed to prevent the merchandise from being damaged and the merchandise performance from deteriorating.
	This symbol indicates useful reference information that will help the user in operating the microscope system and conducting maintenance activities.

⚠ Observe the following safety considerations

1. Read the User's Manual supplied with this system carefully and familiarize yourself with the handling of this system before use.
   Never use this system in any other ways than as described in the User's Manual. Such use may result in not only malfunction of this system but also injury of users, failure of this system, and output of erroneous image data.
2. If a slide glass specimen being observed is a contagion, clean the part of this microscope system that came into contact with the specimen to prevent contagion.
   - If a slide glass specimen is inadvertently broken, immediately take necessary actions to prevent contagion.
3. Set the microscope system on a level, strongly built table (angle of inclination must be less than 10°). The VS120-S1 and S5 each weigh about 52 kg. The VS120-L100 weighs about 100 kg. Please prepare a table that can sustain this load.
4. Do not put your hand in the device while operating the stage or the slide loader. You may be injured by pinching your fingers.
5. The lamp housing is located at the rear of the microscope and its surface becomes very hot. When installing the microscope system, take care that there is sufficient space around the lamp housing (10 cm or more), particularly at the area right above the top of the lamp housing
6. The service life of the lamp housing is eight years or a total operating period of 20,000 hours, whichever is shorter. For further details, refer to the "Lamp housing Inspection sheet" on page 32.
7. If the power cord comes into contact with parts in close proximity to the lamp housing or the lamp housing itself, it may melt potentially resulting in an electric shock. When routing the power cord, make sure that it runs sufficiently distant from the lamp housing.

8. When replacing the lamp, use caution to prevent electric shock or a burn. Specifically, set the power switch of microscope control box to **O** (OFF), pull the power cord out of the AC outlet, and let the lamp and the lamp housing cool off. After they are sufficiently cooled off, replace the lamp.
   Refer to page 14 for replacement procedures.

Designated halogen lamp	12V 100WHAL-L (7724 made by PHILIPS)

9. Use only power cord which Olympus specified. If no power cord is provided by Olympus, please select the proper power cord by referring to "Proper Selection of the Power Supply Cord" on page 33 to 34. Otherwise the safety performance of the microscope system can not be assured.
10. Make sure that you ground the microscope system. Otherwise our intended electrical safety performance of the microscope system can not be assured.

11. Do not allow the power cord to become wet. An electric shock may occur.
12. Do not bend, pull, twist or crush the power cord (cable) or apply excessive force to it. The power cord may break and result in a fire or electric shock.
13. Do not bind up the power cord when connecting it to an electric outlet.
14. If a metal scrap or other object gets into the air hole, an electric shock or malfunction may result. Make sure that you always keep the air hole free of such foreign objects

Symbols concerning safe operation

The following symbols concerning safe operation are shown on the main body or parts of this microscope system. Understand the meanings of each symbol to ensure safe operation of this microscope system.

Symbol	Meaning
	Be careful not to pinch your fingers or hand.
	The surface is hot. Touching it may result in a burn.
	Do not lift the stage.
	Be sure to comply with the cautions described next to this symbol. Handling or operating it in ways not specified in here may result in personal injury or damage to the product.
	The power switch is ON.
	The power switch is OFF.

Caution symbol

Caution symbols are displayed on the parts that must be handled or operated with extra caution. Be sure to observe these cautions.

Part where the caution symbol is shown	Lamp housing	(high temperature) 
	Stage	(Do not lift) 
	Near the VS120-L100 cassette cover	(pinch hazard) 

If the caution label is stained or peeling off, contact your Olympus distributor for information on how to replace it.

Handling precautions

1. The user is prohibited from moving or relocating the virtual slide system since moving or relocating it may result in the degradation of the system performance. Contact your Olympus distributor for support if the need to move or relocate it arises.
2. The location to install the system requires the maintenance space in addition to the system size.
   The maintenance space needs approx. 250mm each for the left side and the back side of the system.
3. As this system is a precision instrument, which has been installed/adjusted by Olympus engineers at the location specified by customers, be sure to handle it with utmost care without giving any impact on it.
4. Do not touch this system with wet hands when preparing, inspecting or using it.
5. Do not install this microscope system in a place where it will be in direct sunlight or in a hot and humid environment or where there is a lot of dust or vibration. (For information on the operating environment, refer to “Specifications” on page 29.)
6. Do not use other size of the slide glass specimen than those specified in this manual.
   - Slide glass Width: 25 to 26 mm, length: 75 to 76 mm, thickness: 0.8 to 1.4 mm
   - Cover glass Thickness: 0.12 to 0.17 mm

Maintenance and preservation

1. To clean lenses, remove dust by blowing them with a commercially available blower and wipe them lightly with cleaning paper (or a piece of repeatedly washed gauze). Only if they are stained by fingerprints or oils should you wipe them using cleaning paper slightly moistened with dehydrated alcohol sold at stores.

Avoid cleaning lenses with the camera or the lenses removed. Doing so will cause the system performance to deteriorate.

Dehydrated alcohol is highly flammable. Do not expose it to heat or flame, and do not turn off or on the power switch of various electrical apparatuses since ignition can be induced by just switching switches on and off. In addition, make sure that the room is well ventilated.

2. Do not use an organic solution to clean parts other than lenses. If a part is heavily stained, wipe it with a soft cloth slightly moistened with a diluted neutral detergent.
3. The service life (accumulated operating hours) of the vacuum pump in the slide loader of the VS120-L100 is about 1,000 hours. This corresponds to 30,000 images of slide glass specimens.

4. Disassembling any part of the microscope system will cause the microscope system performance to deteriorate. Do not disassemble the parts of this microscope system.
5. If the microscope system is not in use for a certain period of time, set the power switch to **O** (OFF), check that the lamp housing has cooled off sufficiently, and put the dust cover on it to protect it from dust.
6. Before disposing of this microscope system, be sure to follow the regulations and rules of your local government.

Controller and software

Controller data may be destroyed and lost unexpectedly. Data acquired by the user should be backed up regularly.

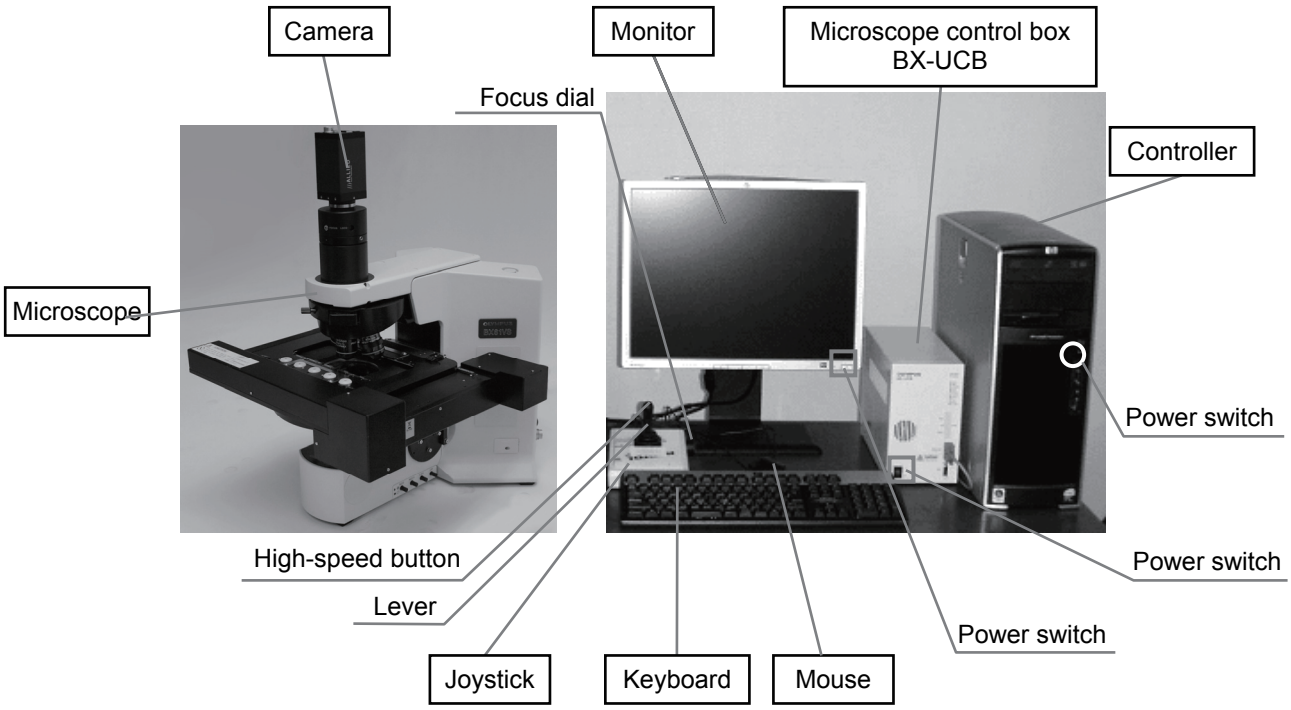
- Avoid connecting the controller directly to an external network (such as the Internet) to protect this system against viruses and prevent the system against being updated unnecessarily. Otherwise the controller may be corrupted due to severe viruses or other causes. If this system is infected with a virus, contact the network-related personnel of your facility immediately.
- Our company will not take responsibility for any type of incidental damage, including damage to controller data, caused by the use of this microscope system or the inability to use this microscope system.
- It is the user's responsibility to create backups of data and maintain them in a safe place. (Our company does not provide the service of supporting the user in creating backups of data or any other such service.)
- For information on matters related to controllers and Microsoft Windows 7, consult the manual provided with your controller or operating software or the help function of the GUI
- Consult your local government for Windows Updates. Do not use Internet access for Windows Updates.
- Our company will not take responsibility for abnormal operation or malfunctions that may occur after the controller environment settings (for example, BIOS settings) are changed or other software programs are installed.
- If the free space on the data drive becomes low, the data processing speed will slow down noticeably or errors may occur. It is recommended that you constantly delete unnecessary data files. The required minimum free space is 120 GB.
- When the file fragmentation in the data drive progresses, the data processing speed may slow down drastically or an error may occur. Be sure to check the properties of the data drive on regular base to optimize it as needed.
- This microscope system does not support such power-saving modes as "standby mode" or "pause mode." Do not set such modes when using this microscope system.
- Never delete or change the names of the folders created by Olympus on the hard disk of the controller being used upon the delivery of the microscope system. If they are deleted or their names are changed, the software may no longer run.
- While the software of this microscope system is running, do not execute other software. If other software is executed, there is a possibility that the software of this microscope system may not operate normally.

1 Description of Each User Operable Part

NOTE

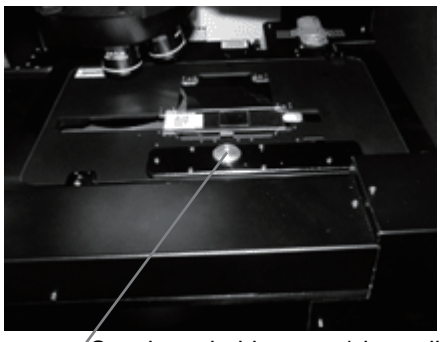
As this system has been installed and adjusted by Olympus engineers at the location specified by customers, do not touch any part other than the keyboard, the mouse or operation parts described in this manual. After the preparations are made according to the instructions given in Chapter 2, specimens are observed and images are acquired by operating the controller.

1-1-1 VS120-S1/S5

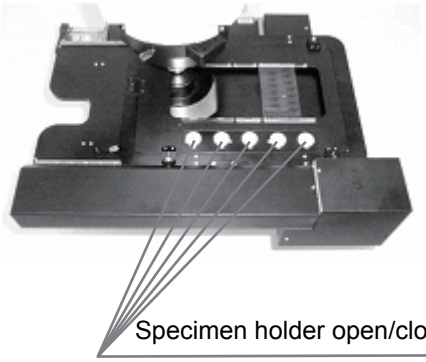


Microscope stage

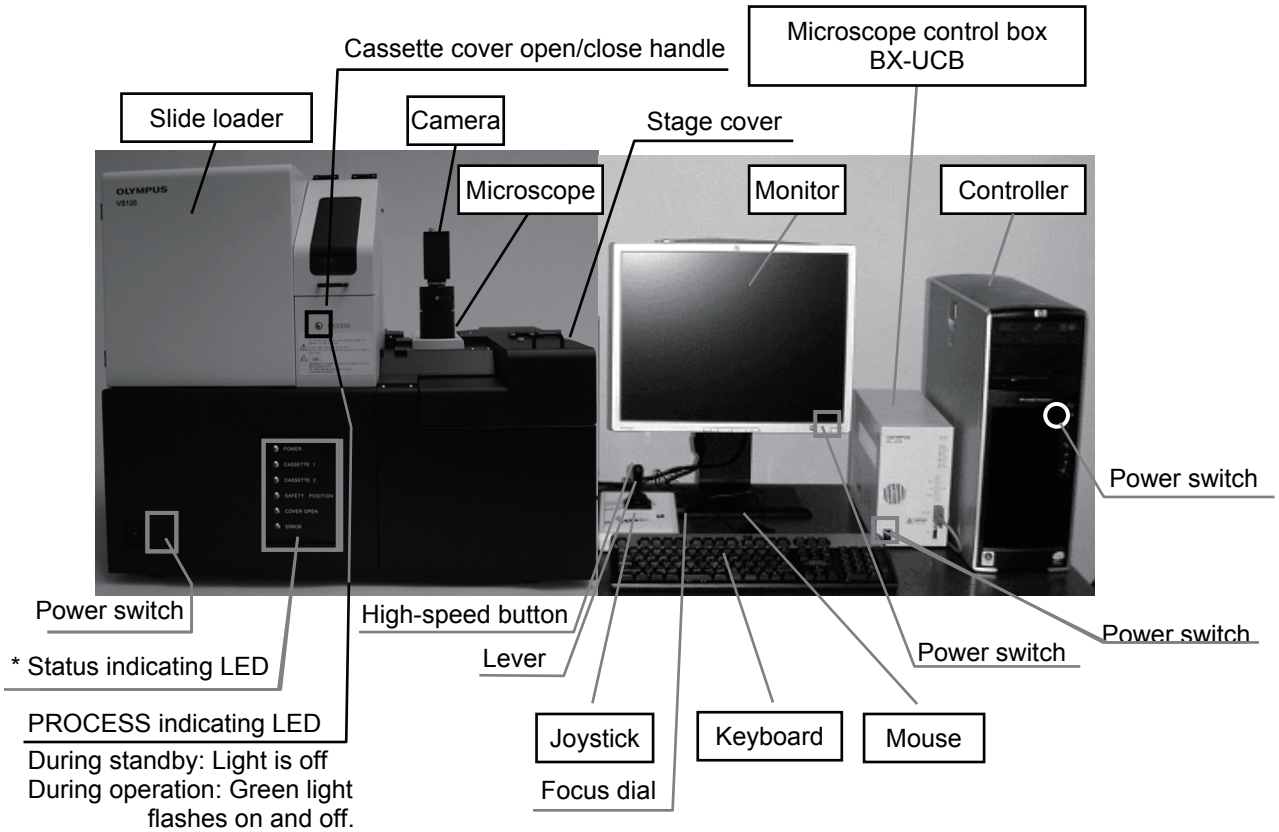
VS120-S1



VS120-S5



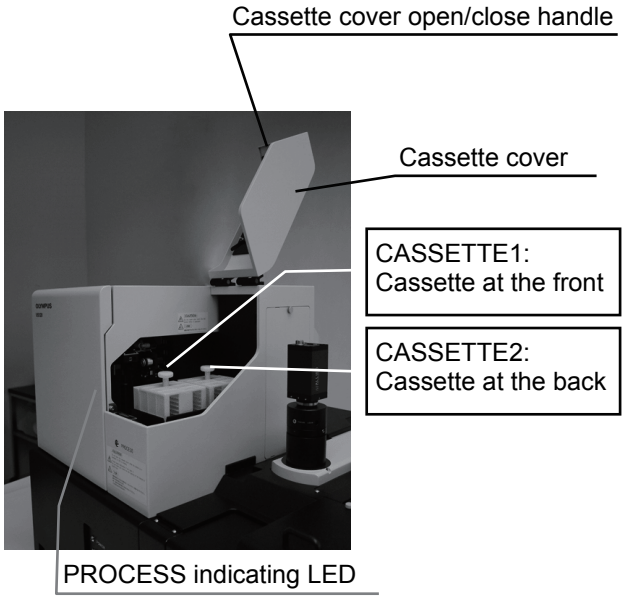
1-1-2 VS120-L100



* Status indicating LED

LED indication	Function
POWER	When the power is on, the LED lights up green.
CASSETTE1	When a cassette is set on cassette table 1 (in front), the LED lights up green.
CASSETTE2	When a cassette is set on cassette table 2 (in back), the LED lights up green.
SAFETY POSITION	When the transfer arm is at the initial position, the LED lights up green.
COVER OPEN	When the cassette cover is open, the LED lights up yellow.
ERROR	When an initialization error occurs, the LED lights up yellow.

When the cassette cover is open



2 Preparations before Starting Observation

Handling and operating precautions

- Be careful not to bump the microscope system during image acquisition. If the microscope is inadvertently bumped during image acquisition, normal slide scan images cannot be acquired and calibration will be necessary.
- Image quality may deteriorate if vibrations occur during image acquisition. For this reason, doing work on the table during the image acquisition should be avoided as much as possible.
- Affix a one- or two-dimensional code label to a slide glass specimen on the same surface where the cover glass is attached, within 25mm from the edge of the long side.
  Do not use a slide glass specimen whose code label is coming off.
  The code label may not be read properly depending on the code label condition.
  * The following one- or two-dimensional codes can be read by VS120-L100.
  Two-dimensional codes: QRCode, DataMatrix (ECC200), MicroQR, PDF417
  Barcodes: WPC (JAN/EAN/UPC-A/UPC-E), NW-7, ITF, Industrial2of5, Code39, Code93, Code128, RSS-14, RSSLimited, RSSExpanded
- If a slide glass specimen has a chip or crack in it, there is a case where it cannot be held in place on the stage properly.
- Do not use a slide glass specimen whose cover glass sticks out over the edge of the slide.
- If there is dust or stains on a slide glass specimen, there are cases where the scan cannot be performed properly. Before starting observations, remove dust or stains by wiping down the slide.

2-1 Starting the microscope system

1. Turn ON power of the controller, the monitor, the microscope control box, and the slide loader (for VS120-L100 only). (Refer to the figures displayed in page 7 or page 8.)

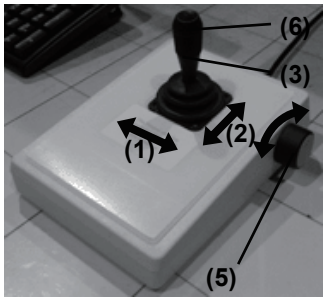
2. After Windows starts, enter your user name and password.

TIP

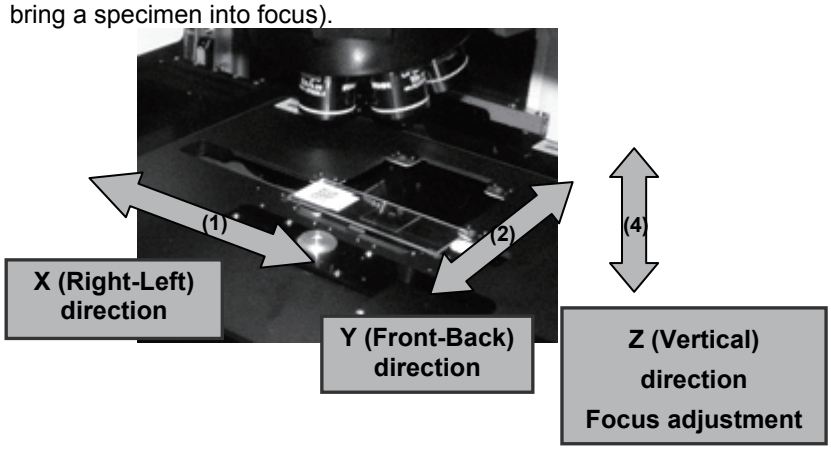
The user name and password to be entered here are not the user name and password registered on the VS120.

3. Double-click the [VS-ASW] icon on the desktop.
   The VS-ASW software starts, and the stage adjustment operation begins.

2-2 Stage operation



1. Tilt the lever (3) of the joystick to move in the X direction (1) or in the Y direction (2).
   - In case of VS120-S1 and VS120-L100:
     X= Right-Left direction of the stage Y= Front-Back direction of the stage
   - In case of VS120-S5:
     X= Front-Back direction of the stage Y= Right-Left direction of the stage
2. Turn the focus dial (5) to move in the Z direction (4) (up and down) (to bring a specimen into focus).

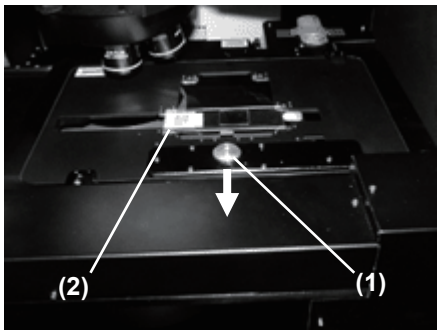


Supplementary explanations

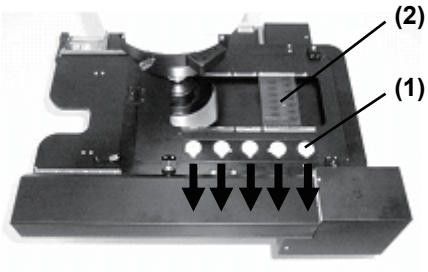
- The joystick is operable when the controller power is on.
- To display it on the monitor, however, the VS120 software must be started.
- Operating the lever while pressing and holding down the high-speed button (6) at the tip of the joystick allows you to move at a faster speed.

2-3 Setting a slide glass specimen

2-3-1 VS120-S1/S5



VS120-S1



VS120-S5

1. Open the specimen holder by pulling the specimen holder open/close slider (1) toward you. Set a slide glass specimen in place.
   - VS120-S1: Set a slide glass specimen such that its longer side faces front and the label (2) is on the left side.
   - VS120-S5: Set a slide glass specimen such that its shorter side faces the front and the label (2) is toward the front.

NOTE **Set slide glass specimens in place with the cover glass facing up (facing the objective lens). If the cover glass is facing down, the specimen cannot be brought into focus.**

NOTE **Take care that you do not touch the objective lens.**

2. Gently return the specimen holder open/close slider back to its original position and check that the specimen is securely seated and not tilted.

3. In the case of the VS120-S5, set the required number of slide glass specimens in the same manner as described in steps 1 and 2.

This completes the preparations before starting observations.
Start observations and acquire images by following the instructions given in the [simple operation] manual.

2-3-2 VS120-L100

NOTE

The following additional precautions must be observed to prevent automatic transfer errors from occurring:

- **Keep slide glass specimens free of moisture or water.**
- **Clean the reverse face of a slide glass specimen to remove dust or stains.**

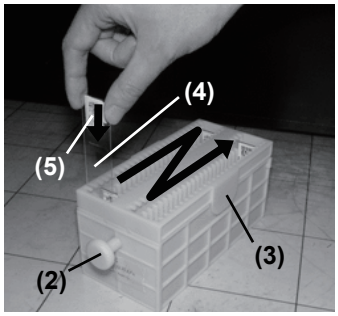
NOTE

Do not deliver the cassette being tilted. The slide glass specimen in the cassette may drop out.

1. Hold and lift the cassette cover open/close handle (1) of the slide loader to open the cassette cover.

2. Take two cassettes out by holding the knob (2) at the top of the cassette.

3. Set the cassette on a level surface with the cassette lid (3) facing up.

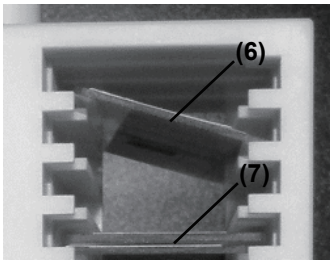


4. Orient a slide glass specimen (4) such that the label (5) faces the lid and the cover glass faces the knob. Insert the slide glass specimen (4) oriented this way into the cassette.

NOTE

(6) Be careful not to insert one slide glass specimen diagonally into two different slots.

(7) Be careful not to insert more than one slide glass specimen into a single slot.



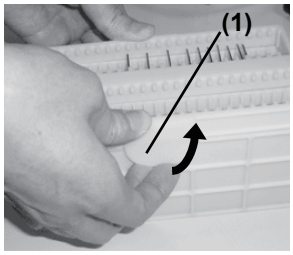
TIP

Slide glass specimens are transferred into the microscope system in the order indicated by the arrow.

5. Gently set the cassette loaded with slide glass specimens upright. Hold the knob while taking care not to tilt the cassette, hold it so the lid faces left, and then put the cassette back into place inside the slide loader.

6. Check that the CASSETTE1 (or CASSETTE 2) status indicating LED on the front face of the slide loader lights up green.

7. Close the cassette cover on the slide loader.



To take slide glass specimens out of the cassette:

1. Move latch (1) on the cassette lid upward slightly with a finger to release it.

NOTE **Applying a strong force to the latch may damage the latch.**

2. Release the latch on the other side in the same way and remove the lid.

3. After taking all specimens out of the cassette, put the cassette lid back in place.

TIP

To place a slide glass directly on the microscope stage, use the handle of the stage cover to open and close it.

For the procedure for placing the slide glass on the stage, refer to VS120-S1/S5 On page 11.

NOTE **Be sure not to put slide glasses on the stage cover. When the stage cover is opened, slide glasses may drop down onto the stage.**

NOTE **Tighten the screws of stage cover firmly. The stage cover may come off if screws are loosened.**

NOTE **When opening the stage cover, be sure not to hit a camera and the other units.**
When closing the stage cover, be sure not to pinch your hands.

This completes the preparations before starting observations.
Start observations and acquire images by following the instructions given in the [simple operation] manual.

3 Maintenance

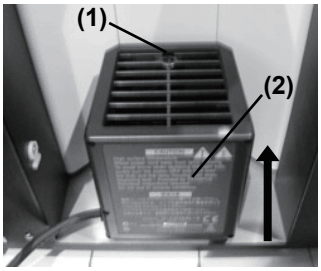
3-1 Replacing the halogen lamp of the microscope

<u>Precautions to be followed when replacing the halogen lamp during observations or right after turning it off:</u>

During observations or right after turning the halogen lamp off, the lamp, lamp housing, and surrounding parts are very hot. Before replacing the lamp with a new one, set the power switch to O (OFF), pull out the power cord, and wait for a while until the lamp, lamp housing, and surrounding parts cool off.

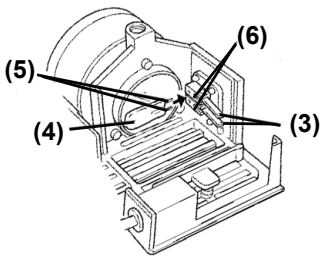
Do not directly touch the lamp. If a fingerprint or other substance gets on the surface of the lamp, wipe it off using a soft cloth to prevent the lifespan of the lamp from shortening or the lamp from bursting.

TIP Use a 12V halogen lamp 100WHAL-L (7724 made by Philips).



1. Loosen the securing screw (1) on the top surface of the lamp housing using the hex screwdriver provided with the microscope system.

2. Remove the lamp cover (2) by lifting it up.



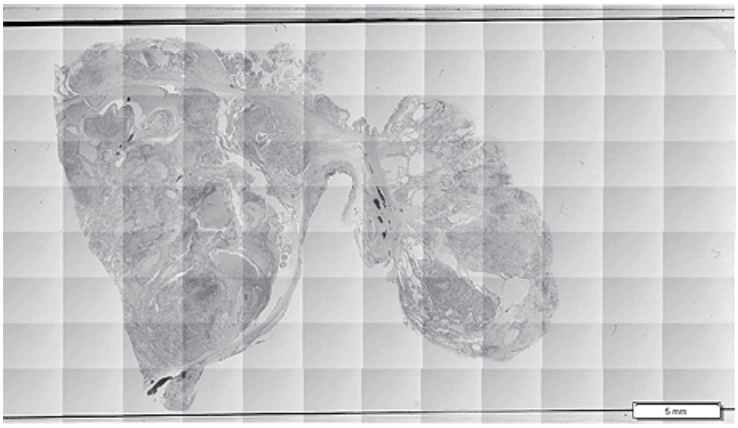
3. While pressing and holding down the lamp locking lever (3), hold the new halogen lamp (4) wrapped with a piece of gauze or something similar, and horizontally insert the pins (5) until it butts up against the socket (6). Gently release the lamp locking lever (3) to secure the new halogen lamp in position.

4. Replace the lamp housing, and tighten the securing screw (1) while pressing it downward.

3-2 Correcting uneven brightness (shading correction)

If the VS120 system is used for a long period of time, the brightness of images may become uneven.

This phenomenon is called shading. When shading occurs, the virtual slide image looks like the one shown in the figure below. In this case, calibrations must be performed to restore the image brightness to a normal even state.



Virtual slide image affected by shading

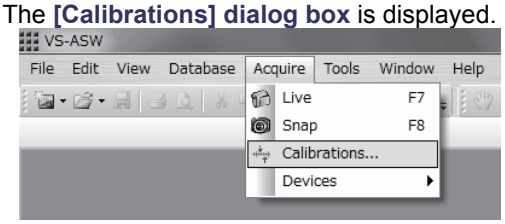
1. Set a slide glass specimen on the stage by performing the steps described in **2-3.**

TIP

In performing calibrations to correct shading, use a slide glass specimen that has a large transparent area (an area in which there are no cells or tissues).

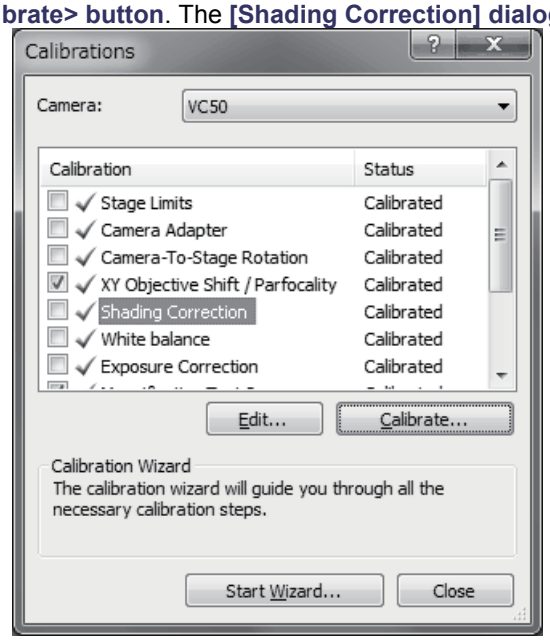
Before setting the slide glass specimen to be used for calibrations on the stage, clean it thoroughly so that it is free from dust, dirt or stains.

2. On the menu bar of the VS-ASW software, click **[Acquire]** and then **[Calibrations]**. The **[Calibrations] dialog box** is displayed.



<Calibrate> button

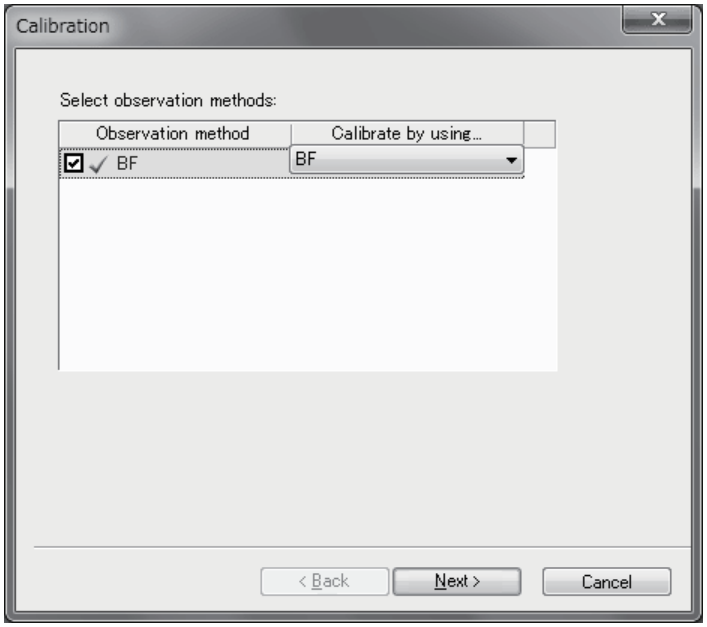
3. Select **[Shading Correction]** from the list in the **[Calibrations] dialog box**, and click the **<Calibrate> button**. The **[Shading Correction] dialog box** is shown.



[Calibrations] dialog box

<Next> button

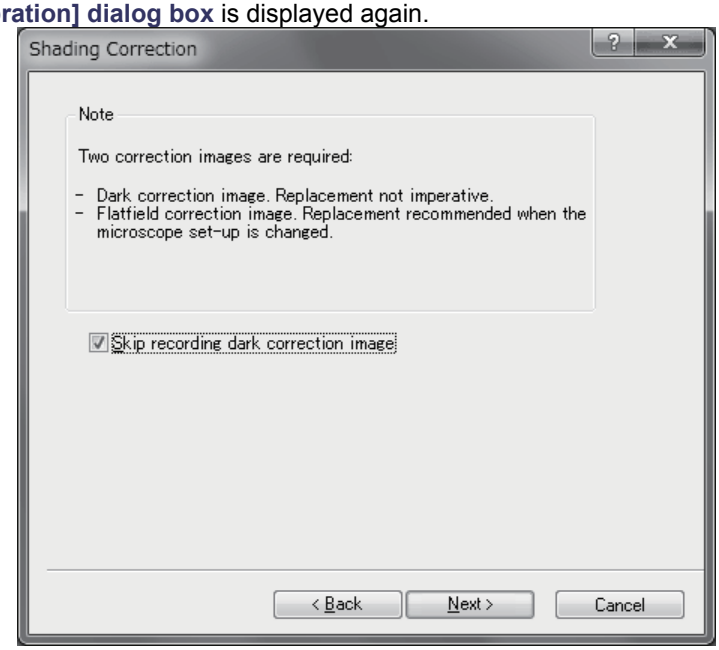
4. Click the **<Next> button**.



[Calibration] dialog box

<Next> button

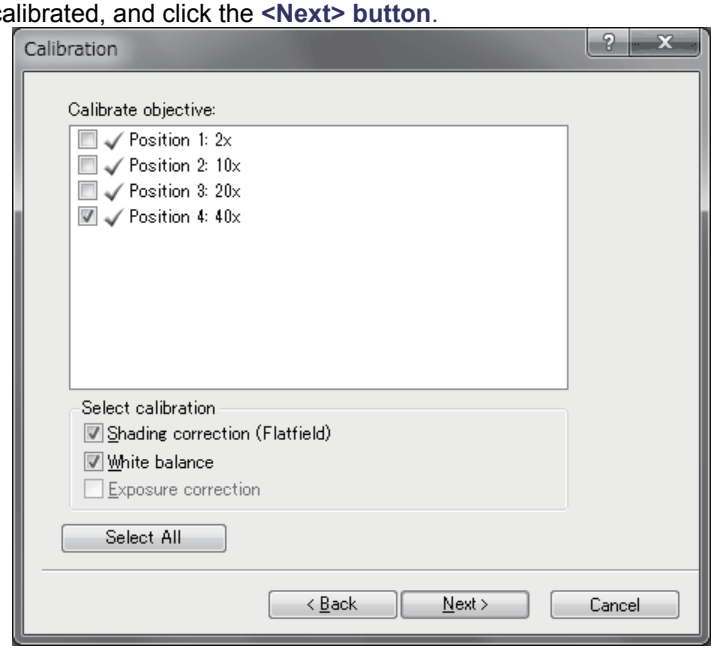
5. In the **[Shading Correction] dialog box**, put a check in the check box for **[Skip recording dark correction image] checkbox**, and click the **<Next> button**. **[Calibration] dialog box** is displayed again.



[Calibration] dialog box

6. Select the magnification with which calibrations are to be performed and the items to be calibrated, and click the **<Next> button**.

<Next> button



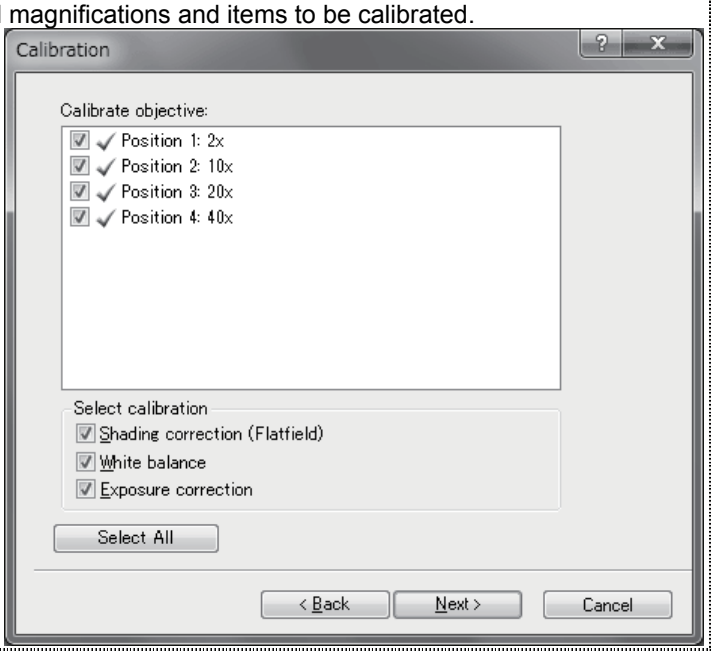
[Calibration] dialog box

<Select All> button

TIP

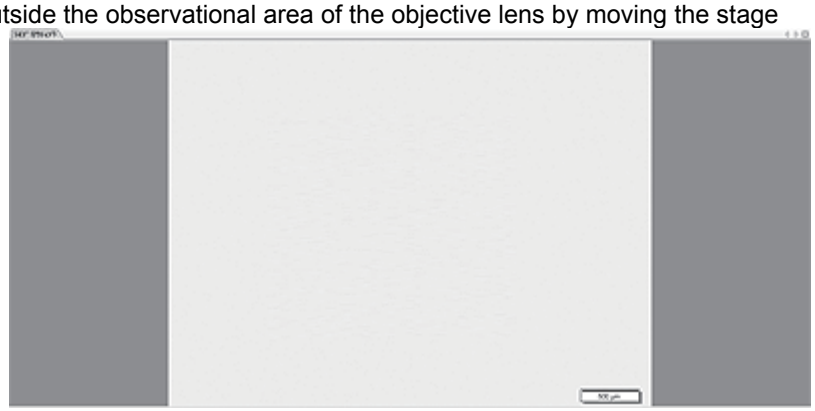
Usually all items to be calibrated are selected.

If the **<Select All> button** is clicked, check marks are shown in all check boxes for all magnifications and items to be calibrated.



7. Calibrate the 2X objective lens.

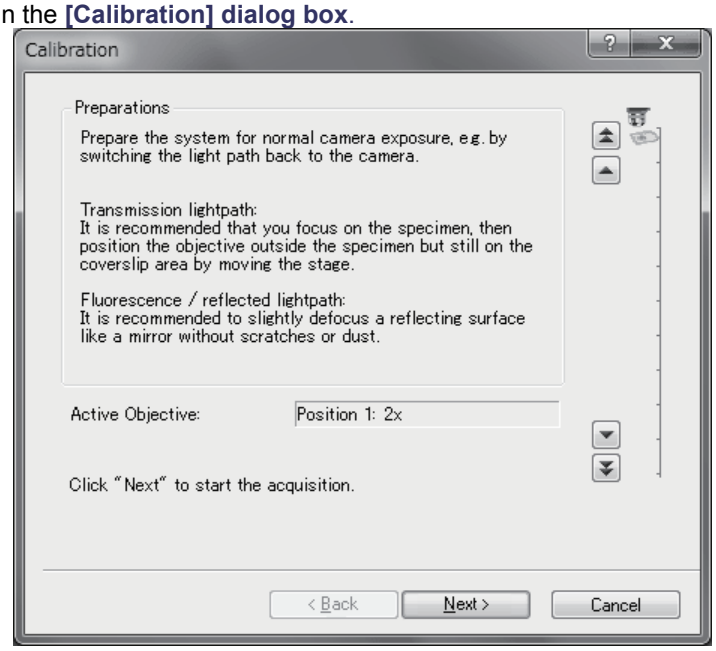
   After bringing the slide glass specimen into focus by viewing its live image, move it outside the observational area of the objective lens by moving the stage



[Live image]

<Next> button

After confirming that nothing is displayed on the live image screen, click the **<Next> button** in the **[Calibration] dialog box**.



[Calibration] dialog box

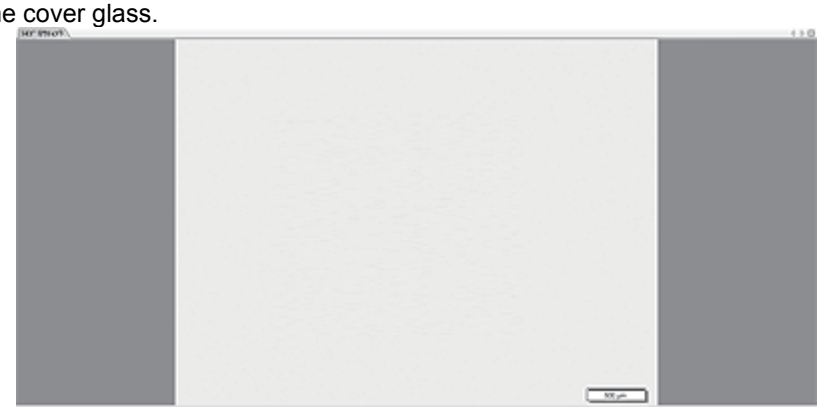
TIP

If dust, stains, etc., are noticed on the live image, clean the objective lens and condenser lens.

For information on how to clean the lenses, refer to “Maintenance and preservation”.

8. Calibrate the 10X objective lens.

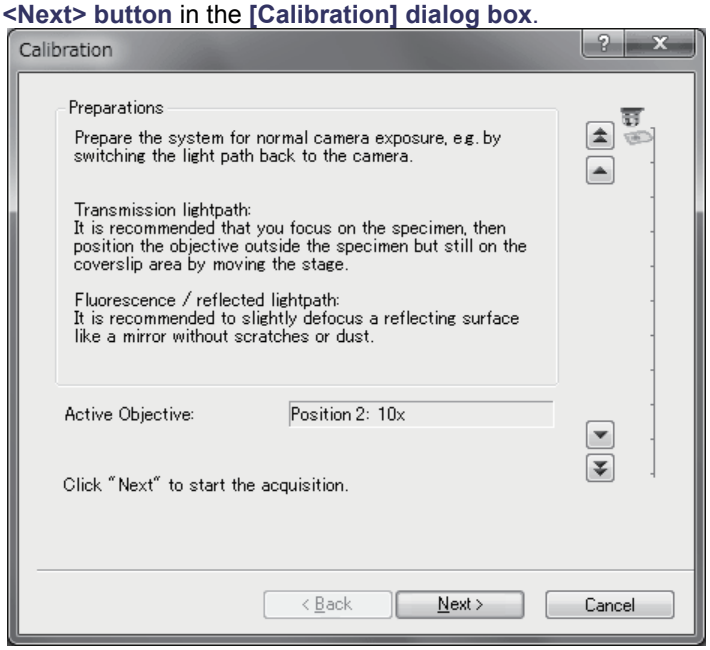
   After bringing the slide glass specimen into focus by viewing its live image, move the stage to a position where the specimen disappears and you see only a part of the cover glass.



[Live image]

<Next> button

After confirming that you see only a part of the cover glass on the live image screen, click the **<Next> button** in the **[Calibration] dialog box**.



[Calibration] dialog box

TIP

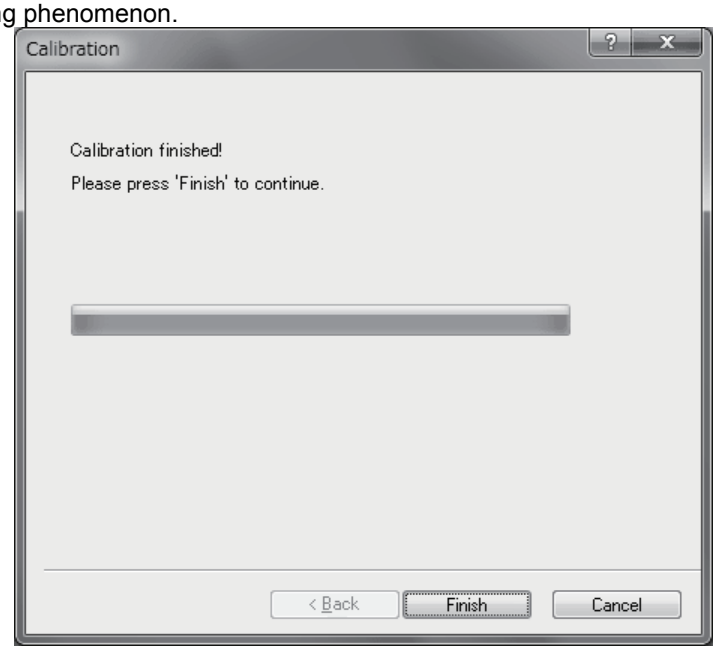
If dust, stains, etc., are noticed on the live image, clean the objective lens and condenser lens.

For information on how to clean the lenses, refer to "Maintenance and preservation".

9. Calibrate the 20X and 40X objective lenses by performing the same steps as performed for the 10X objective lens.

<Finish> button

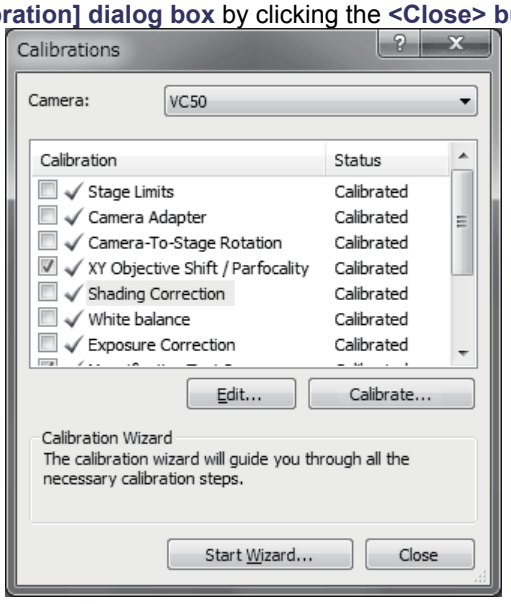
After calibrating the 40X objective lens, click the **<Finish> button** in the **[Calibration] dialog box**. This completes the calibrations for correcting the shading phenomenon.



[Calibration] dialog box

<Close> button

10. Close the **[Calibration] dialog box** by clicking the **<Close> button**.



[Calibration] dialog box

3-3 Overview Image Area Settings

When acquiring the image by VS120, acquire the overview image (2x magnification) of the entire slide glass specimen first, and then acquire the image in the specified area by the specified magnification.

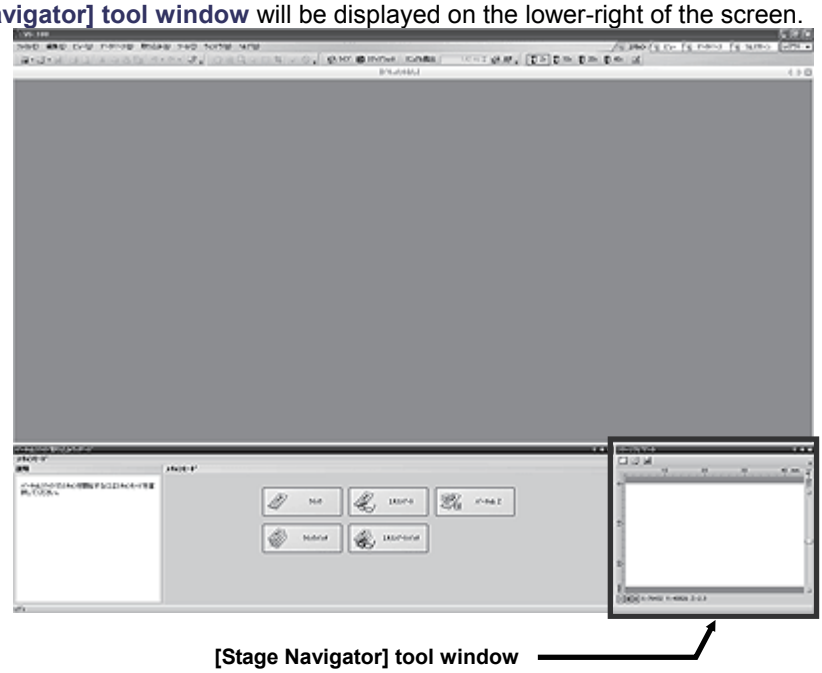
Though the area to acquire the overview image has been preset at setup time, you can set the area and save the overview image by yourself.

3-3-1 Overview Image Area Settings

1. Set the slide glass specimen on the stage according to procedures described in Chapter **2-3**.

[Scan] tab

2. Click **[Scan] tab** on the upper-right of the VS-ASW software screen. **[Stage Navigator] tool window** will be displayed on the lower-right of the screen.

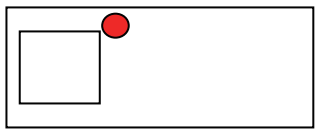
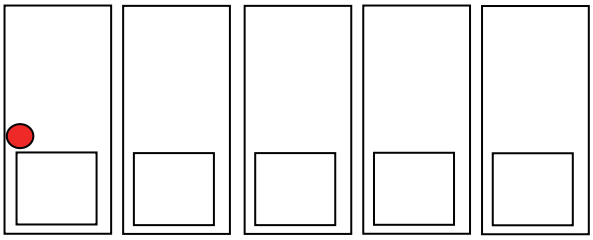


[Stage Navigator] tool window

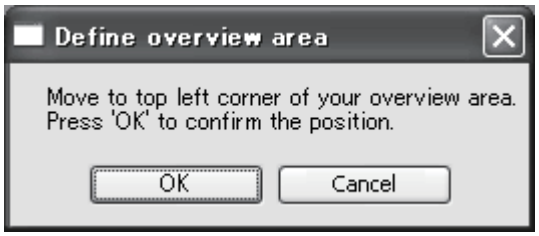
3. Click **[Define Overview Area]** in the tool bar of **[Stage Navigator] tool window. [Define Overview Area] dialog box** will be displayed.

[Define Overview Area]

4. Move the stage to ● position in the figure below. When the position is determined, click **<OK> button** in **[Define Overview Area] dialog box.**

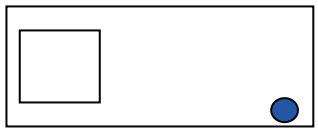
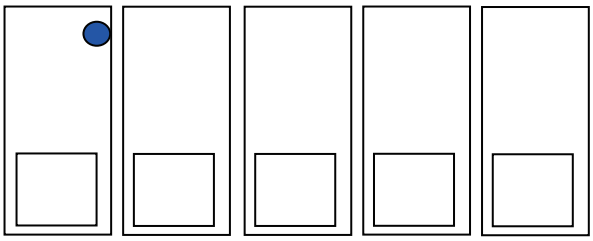
VS120-S1 and VS120-L100	VS120-S5
	

When you are using the VS120-S5, click button 1 on the Stage Navigator tool window.



[Define overview area] dialog box

5. Move the stage to ● position in the figure below. When the position is determined, click **<OK> button** in **[Define Overview Area] dialog box.**

VS120-S1 and VS120-L100	VS120-S5
	

[Define overview area] dialog box

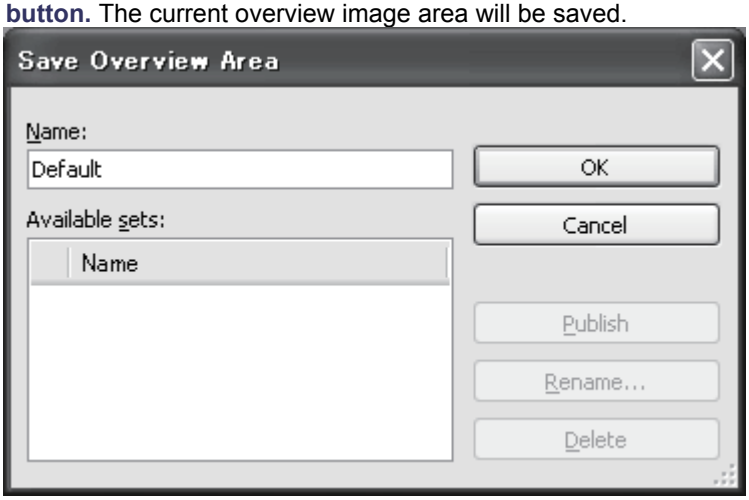
The overview image area has been defined.

3-3-2 Save Overview Image Area

1. Click **[Save Overview Area]** in the tool bar of **[Stage Navigator] tool window. [Save Overview Area] dialog box** will be displayed.

[Save Overview Area]

2. Input the name in **[Name] text box** of **[Save Overview Area] dialog box**, and click **<OK> button.** The current overview image area will be saved.



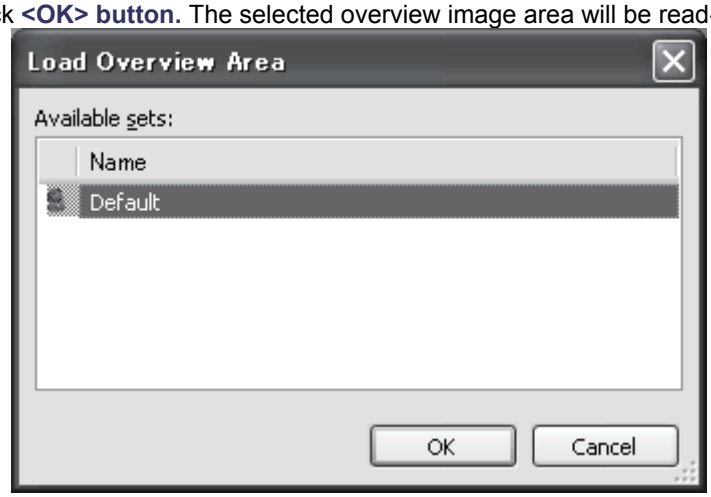
[Save Overview Area] dialog box

3-3-3 Read Overview Image Area

1. Click **[Load Overview Area]** in tool bar of **[Stage Navigator] tool window. [Load Overview Area] dialog box** will be displayed.

[Load Overview Area]

2. Select the name of the overview image are in **[Load Overview Area] dialog box,** and click **<OK> button.** The selected overview image area will be read-in.



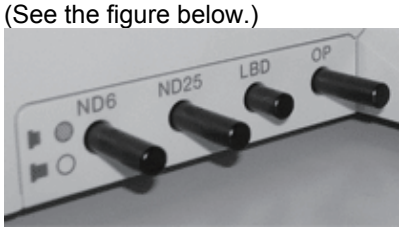
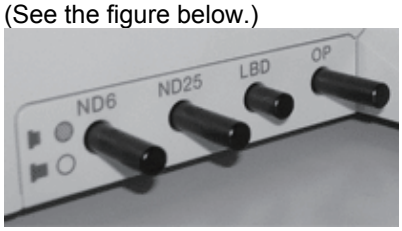
[Load Overview Area] dialog box

4 Trouble Shooting

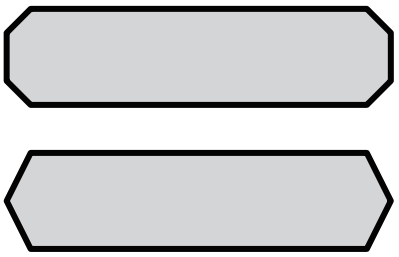
Depending on how the system is used, it may not take full performance of the system, though it is not a failure.

When a trouble occurs, see the followings and exercise appropriate action.

In case that the trouble is not yet recovered, then, contact Olympus local office immediately.

Problem	Cause	Remedy	Page to refer
The image cannot be acquired by VS-ASW software.	The overview image area is not set.	Set the overview image area or read-in the saved settings.	22
The image is too dark.	The objective lens or the condenser lens is dirty.	Clean the objective lens or the condenser lens. For cleaning, be sure not to remove the objective lens or the condenser lens.	4
	The lamp is burned out.	Replace the lamp.	14
	The illumination filters on the right side of the microscope main body are different from the setup status. (See the figure below.) 	Set the illumination filters correctly. ND6: OUT ND25: OUT LBD: IN OP: OUT In general, do not change the position of the illumination filters.	-
The image color is strange.	The illumination filters on the right side of the microscope main body are different from the setup status. (See the figure below.) 	Set the illumination filters correctly. ND6: OUT ND25: OUT LBD: IN OP: OUT In general, do not change the position of the illumination filters.	-
The image brightness is uneven.	The objective lens or the condenser lens is dirty.	Clean the objective lens or the condenser lens. For cleaning, be sure not to remove the objective lens or the condenser lens.	4
	The shading is not adjusted correctly.	Adjust the shading correctly.	15
Unable to focus	The specified slide glass specimen is not being used.	Use the specified slide glass specimen.	29
	The slide glass specimen is set to the opposite direction.	Set the slide glass specimen to the correct direction.	11

Problem	Cause	Remedy	Page to refer
The one side of the image blurs.	A foreign substance is stuck in the stage or the specimen holder.	Remove the foreign substance and clean the stage or the specimen holder.	4
	The slide glass specimen is set tilted.	Set the slide glass specimen again so as not to be tilted.	11
The slide glass specimen cannot be loaded correctly by the slide loader. (For VS120-L100 only)	Moisture is adhered to the slide glass specimen.	Wipe out moisture from the slide glass specimen.	12
	The reverse face of the slide glass specimen is dirty.	Clean the reverse face of the slide glass specimen.	12
	The slide glass specimen is inserted diagonally into 2 different slots of the cassette.	Insert the slide glass specimen in the cassette correctly.	12
	Multiple slide glass specimens are inserted in one slot of the cassette.	Insert the slide glass specimen in the cassette correctly.	12
	The durable time of vacuum pump in the slide loader has passed.	Contact to Olympus local office.	4
The slide glass specimen was dropped into the slide loader. (For VS120-L100 only)	The slide glass specimen was dropped due to incorrect loading occurred by causes described above.	Switch OFF the power of the slide loader. Open the cassette cover or the side cover, and remove the dropped slide glass specimen with the tweezers. If the slide glass specimen was dropped in the place where it's hard to remove, contact to Olympus local office. 	-

Problem	Cause	Remedy	Page to refer
The slide glass specimen inserted in the cassette cannot be detected by the slide loader. (For VS120-L100 only)	Some kinds of slide glass specimen which has chamfered corners as described below might not be detected by the slide loader.  **Section of slide glasses**	Set the slide glass specimen onto the stage directly. Alternatively, use a slide glass specimen which has right-angled corner.	-
The information of the slide barcode is displayed as “NL”. (For VS120-L100 only)	The direction to insert the slide glass specimen is not correct.	Insert the slide glass specimen in the cassette correctly.	12
	The position to affix the code label is not correct.	Affix the code label on the proper position.	9
	The code label is not affixed.	Affix the code label on the proper position.	9
The information of the slide barcode is displayed as “ND”. (For VS120-L100 only)	The coding area is dirty.	Clean the coding area.	9
	Space around the code is too small.	Secure enough space around the code.	-
	Print of the code is too rough.	Increase the resolution of the print. (600dpi or more)	-
	The code print size is too small.	Enlarge the code print size.	-
The information of the slide barcode is not reflected to the file name. (For VS120-L100 only)	Special characters ¥ / : * ? < > | or the line feeds are included in the code data.	Do not include special characters ¥ / : * ? < > | or the line feeds in the code data.	-

5 Specifications

		VS120-S1	VS120-S5	VS120-L100
Specimens to be observed	Observable specimens	Tissue specimen fixed on a slide glass with cover glass		
	Compatible slide glass	Width: 25 to 26 mm, length: 75 to 76 mm, thickness: 0.8 to 1.4 mm		
	Compatible cover glass	Thickness: 0.12 to 0.17 mm		
Specially-designed optical microscope	Observation method	Transmitted light brightfield observation (Koehler illumination)		
	Objective lens	Automatic switching between 2X, 10X, 20X, and 40X objective lenses		
	Motorized stage	Automatic control via motorized XY stage		
	Focusing	Auto focus control via motorized focusing		
Specially-designed digital camera	Image correction	Shading correction, white-balance function		
Slide transfer system	Number of slide glass specimens	1 slide (setting onto the stage directly)	A maximum of 5 slides (setting onto the stage directly)	A maximum of 100 slides (transferring onto the stage by using the slide loader)
Scan	Scan area	Width: 26 mm, length: 64 mm (slide glass 26 mm wide × 76 mm long)		
	Resolution	0.33 μm/pixel or less when the 20X objective lens is used		
	Scan speed	About 2 minutes (area of 15 mm × 15 mm when the 20X objective lens is used)		
System control	controller	DOS/V compatible controller (Windows 7 Professional English version)		
	Network	Ethernet (100/1,000)		
	Memory	4GB		
	Storage	1.0 TB or more		
	Display	24-inch wide-screen LCD monitor		
	Software	Image saving format (proprietary format, JPEG, TIFF), a zoomed-in image can be observed during image acquisition, annotation function, automatic recognition of the position of a specimen, Z stack function, EFI function, one-shot image acquisition function, stepless scaling function, multiple image synchronized display function, gluing together of images, consultation software (optional)		
		-	Control of 5-piece slide image acquisition	Control of the automatic transfer system
Other	Rated voltage/current	Refer to page 31.		
	Weight	About 52 kg (including the weight of the main body, controller, and monitor)	About 52 kg (including the weight of the main body, controller, and monitor)	About 100 kg (including the weight of the main body, controller, and monitor)
	Operating environment	Temperature: 15 to 28°C, humidity: 30 to 80% (no condensation)		
	Electric power consumption	960W	960W	1030W

■ Controller: VS120-PC-E

Item	Specification
Controller	OS: Windows 7 Professional 32 bit, English version The specially-designed XYZ control board is built in.
Rating	100-120V/200-240V ~ 50/60Hz 10A/6A
Outside dimensions, weight (not including the dimensions or weight of protruding parts)	167.9 (W) × 445.3 (D) × 450.2 (H) mm, about 15 kg

■ Microscope control box: BX-UCB

Item	Specification
Rating	100-120V/220-240V ~ 50/60Hz 3.5A/1.5A
Outside dimensions, weight (not including the dimensions or weight of protruding parts)	125 (W) × 332 (D) × 216 (H) mm 5 kg

■ Slide loader: VS120-LD100

Item	Specification
Rating	100-120V/220-240V ~ 50/60Hz 0.9A/0.5A
Outside dimensions, weight (not including the dimensions or weight of protruding parts)	720 (W) × 587 (D) × 637 (H) mm 55 kg

■ Monitor: VS-MON24W

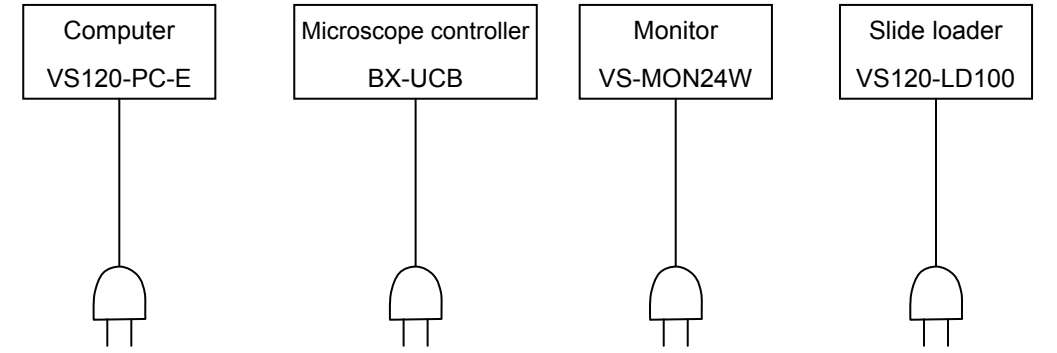
Item	Specification
Image size	24-inch wide-screen LCD display
Rating	100-240V ~ 50/60Hz 1.5A
Outside dimensions, weight (not including the dimensions or weight of protruding parts)	556 (W) × 235 (D) × 525 (H) mm (including the fixed-type base, when the monitor is set to its highest position), about 8.5 kg

■ Operating environment

Item	Specification
-	Indoor use
Altitude	Max. 2000 meters
Operating temperature	15 to 28°C
Operating humidity	30 to 80% RH (no condensation)
Supply voltage fluctuations	±10%
Overvoltage category	II (IEC60664)
Degree of contamination	2 (IEC60664)

■ Rated voltage/current

Before connecting each of the following pieces of equipment to the AC outlet, check the capacity of the AC outlet to be used.



6 Lamp housing Inspection sheet

NOTE

- **Study the instruction manual for the lamp housing before inspection.**
- **For safe use of the lamp housing, we recommend performing the following inspection periodically (every time you replace the lamp bulb and at least every 6 months).**
- **The table below identifies the check items to be observed. Put (X) if not applicable or (√) if applicable.**
- **If there is any (X) mark noted, immediately stop use of the product, and contact Olympus for detailed inspections or replace the lamp housing.**
- **If you detect an abnormality other than that listed below or with other Olympus product, also stop the use of the product and contact Olympus for detailed inspections.**
- **Note that the service, replacement and detailed inspections are charged after expiration of the warranty period.**

If you have any questions, please contact Olympus.

	Check results (Date)			
Check items	/	/	/	/
1. More than 8 years have passed since original purchase or the total power ON time has exceeded 20,000 hours.				
2. Lamp does not light sometimes even though the power switch is set to on.				
3. Illumination flickers when you move the lamp cable or lamp housing.				
4. Lamp cable is unusually hot to the touch.				
5. Scorching or burning odor is produced during use.				
6. Illumination still flickers after replacement with a new lamp bulb.				
7. Deformation, backlash, or looseness, etc. when you assemble the lamp housing. (Impossibility of removing the top section of lamp housing when you attempt to replace the lamp bulb, etc.)				
8. Extreme discoloration of the lamp housing connection terminal or lamp socket. Uneven discoloration of the left and right sections of these parts.				
9. Discoloration, deformation or cracking of the lamp housing.				
10. Melting, crack, deformation or solidification of the lamp cable or a wiring part.				
11. Increased frequency of servicing compared to similar devices put into use at the same time as the lamp housing.				

* When the Check Result columns become insufficient, copy this sheet.

Proper Selection of the Power Supply Cord

If no power supply cord is provided, please select the proper power supply cord for the equipment by referring to “Specifications” and “Certified Cord” below;

CAUTION: In case you use a non-approved power supply cord for Olympus products, Olympus can no longer warrant the electrical safety of the equipment.

Specifications

Voltage Rating	125V AC(for 100-120V AC area) or , 250V AC (for 220-240V AC area)
Current Rating	10A minimum (for 100-120V AC area) or, 6A minimum (for 200-240V AC area)
Temperature Rating	60°C minimum
Length	3.05 m maximum
Fittings Configuration	Grounding type attachment plug cap. Opposite terminates in molded-on IEC configuration appliance coupling.

Table 1 Certified Cord

A power supply cord should be certified by one of the agencies listed in table 1, or comprised of cordage marked with an agency marking per Table 1 or marked per Table 2. The fittings are to be marked with at least one of agencies listed in Table 1. In case you are unable to buy locally in your country the power supply cord which is approved by one of the agencies mentioned in Table 1, please use replacements approved by any other equivalent and authorized agencies in your country.

Country	Agency	Certification Mark	Country	Agency	Certification Mark
Australia	SAA		Italy	IMQ	
Austria	ÖVE		Japan	JET, JQA, TUV, UL-APEX/MITI	
Belgium	CEBEC		Netherlands	KEMA	
Canada	CSA		Norway	NEMKO	
Denmark	DEMKO		Spain	AEE	
Finland	FEI		Sweden	SEMKO	
France	UTE		Switzerland	SEV	
Germany	VDE		United Kingdom	ASTA,BSI	
Ireland	NSAI		U.S.A	UL	

Table 2 HAR Flexible Cord

APPROVAL ORGANIZATIONS AND CORDAGE HARMONIZATION MARKING METHODS

Approval Organization	Printed or embossed Harmonization Marking (May be located on jacket or insulation of internal wiring)		Alternative Marking Utilizing Black-Red-Yellow Thread (Length of color section in mm)		
			Black	Red	Yellow
Comite Electrotechnique Belge (CEBEC)	CEVEC	<HAR>	10	30	10
Verband Deutscher Elektrotechniker (VDE) e.V.Prüfstelle	<VDE>	<HAR>	30	10	10
Union Technique de d'Electricite' (UTE)	USE	<HAR>	30	30	10
Instituto Italiano del Marcio di Qualita' (IMQ)	IEMMEQU	<HAR>	10	30	50
British Approvals Service for Electric Cables (BASEC)	BASEC	<HAR>	10	10	30
N.V. KEMA	KEMA-KUER	<HAR>	10	30	30
SEMKO AB Svenska Elektriska Materielkontrollanstalter	SEMKO	<HAR>	10	10	50
Österreichischer Verband für Elektrotechnik (ÖVK)	<ÖVK>	<HAR>	30	10	50
Danmarks Elektriske Materielkontrol (DEMKO)	<DEMKO>	<HAR>	30	10	30
National Standards Authority of Ireland (NSAI)	<NSAI>	<HAR>	30	30	50
Norges Elektriske Materiellkontroll (NEMKO)	NEMKO	<HAR>	10	10	70
Asociacion Electrotecnica Y Electronica Espanola (AEE)	<UNDE>	<HAR>	30	10	70
Hellenic Organization for Standardization (ELOT)	ELOT	<HAR>	30	30	70
Instituto Portugues da Qualidade (IPQ)	| np |	<HAR>	10	10	90
Schweizerischer Elektro Technischer Verein (SEV)	SEV	<HAR>	10	30	90
Elektriska Inspektoratet	SETI	<HAR>	10	30	90

Underwriters Laboratories Inc.(UL)	SV,SVT,SJ or SJT,3 X 18AWG
Canadian Standards Association (CSA)	SV,SVT,SJ or SJT,3 X 18AWG

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