

OLYMPUS[®]

INSTRUCTIONS

DP21

MICROSCOPE DIGITAL CAMERA

This instruction manual is for the Olympus microscope digital camera DP21. Study this manual thoroughly before operating the camera and familiarize yourself fully with the use of it, which is important to ensure the safety and to obtain optimum performance. Retain this instruction manual in an easily accessible place near the work desk for future reference.



A X 7 9 3 1



This device complies with the requirements of directive 2004/108/EC concerning electromagnetic compatibility and of directive 2006/95/EC concerning electrical equipment designed for use within certain voltage limits. CE marking means the conformity to these directives.



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.

For Korea only

B급 기기 (가정용 방송통신기자재)

이 기기는 가정용(B급) 전자파적합기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.

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IMPORTANT

The microscope digital camera DP21 is designed to be connected to a camera adapter mounted on an Olympus UIS2/UIS series microscope for use in recording of microscopic magnified image of the optical microscope.

When the DP21 is used with a camera adapter from other manufacturer than Olympus, the optical performance may not be manifested fully.

Configuration of instruction manuals

This instruction manual contains only the descriptions of microscope digital camera DP21. For use of the connection kit of the microscope digital camera, refer to the instruction manual of the relevant connection kit.

Caution

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

The following symbols are used to set off text in this instruction manual.

CAUTION : Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or damage to the equipment or other property. It may also be used to alert against unsafe practices.

© : Indicates commentary (for ease of operation and maintenance).



SAFETY PRECAUTIONS

1. Be sure to set the main switch of the all devices to “○” (OFF) before connecting cables.
Also when the connected cable is going to be disconnected, make sure that the main switch is in the “○” (OFF) position.
2. Always use the power cord and AC adapter provided by Olympus. If no power cord, please select the proper power cord by referring to the section “PROPER SELECTION OF THE POWER CORD” at the end of this instruction manual. If the proper power cord and AC adapter are not used, the safety and EMC performance of the device can not be assured.
3. Always connect the power cord correctly and ensure that the grounding terminal of the device and that of the wall outlet are properly connected. If the device is not grounded, our intended electric safety and EMC performance of the device can not be assured.
4. In case of emergency, unplug the power cord to stop supplying electricity. Install the control box and PC at the location where you can reach the power cord connector or the outlet at hand to disconnect the power cord.
5. When installing the digital camera, route the power cord or cable away from the lamp housing. Should the power cord or cable come in contact with a hot part, the power cord could melt and cause electric shock.
6. After operation or in case of abnormality, be sure to disconnect the power cord from the connector on the digital camera or from the outlet.
7. Do not permit tools or metal fragments to get into air vents, or other apertures. Doing so could cause failure of the equipment or electric shock to the user.
8. Cables and cords are vulnerable when bent or twisted. Never subject them to excessive force.
9. The camera head generate heat after it has been used for a long period of time.
To avoid moderate temperature burn, do not leave this part in extended contact with your skin.
10. To prevent the microscope from toppling down, avoid using microscope attachments that may make the total height of the microscope above 1 meter when they are attached.

Safety Symbols

The following symbols are found on the microscope. Study the meaning of the symbols and always use the equipment in the safest possible manner.

Symbol	Explanation
I	Indicates that the main switch is ON.
○	Indicates that the main switch is OFF.

1 Intended use

This product is intended to be used for capture of digital images, but not for clinical diagnostic purposes.

2 Handling Precautions

1. This digital camera is a precision instrument. Handle it with care and avoid subjecting it to sudden or severe impact. Also note that the digital camera does not have a waterproof construction.
2. If the microscope digital camera is used in a manner not specified by this manual, the safety of the user may be imperiled. In addition, the microscope digital camera may also be damaged. Always use the microscope digital camera as outlined in this instruction manual.
3. Do not use the digital camera in areas where it may be subjected to direct sunlight, high temperature and humidity, dust or vibrations. (For the operating environment conditions, see "6 SPECIFICATIONS" on page 15.)
4. The image displayed on the display may be affected when it is used near equipment generating strong electromagnetic waves. To avoid interference during operation, keep the system far from any source of electromagnetic waves.
5. Never set the main switch of the camera to "○" (OFF) or unplug the camera cable or AC adapter during use of the DP21. Otherwise, the PC application may malfunction.
6. Since we are not responsible for any image data, please be sure to check images, backup or edit the data on your own.
7. If cables are connected incorrectly, the product may malfunction. Be sure that every unit is connected correctly before operating the product.
8. For operating the PC, refer to the instruction manual of the PC in use. Pay attention to the precautions and warnings, etc. in the manual.

3 Maintenance and Storage

1. To clean the lenses and other glass components, simply blow dirt away using a commercially available blower and wipe gently using a piece of cleaning paper (or clean gauze).
For wiping fingerprints and oil stains, use a piece of cleaning paper moistened with commercially available absolute alcohol.

CAUTION Since the absolute alcohol is highly flammable, it must be handled carefully. Be sure to keep it away from open flames or potential sources of electrical sparks — for example, electrical equipment that is being switched on or off, which could cause ignition of a fire.

Also remember to always use absolute alcohol only in a well-ventilated room.

2. Do not use organic solvents, which cause painted and plastic parts to deteriorate. Do not use organic solvents to clean device components other than the glass components. To clean them, use a lint-free, soft cloth slightly moistened with a diluted neutral detergent.
3. Do not disassemble this device. Doing so could cause failure of the device.
4. Before disposing of this product, be sure to follow the regulations and rules of your local government.
5. When the system is not used, store it with the dust cover. Before storage, ensure that the main switches of the camera head and the microscope are set to OFF and that the camera head, AC adaptor and lamp housing of the microscope is cool enough.
6. When smoking the room for cleaning, etc., move the microscope digital camera DP21 to a place not exposed to smoke.
7. Care is required against condensation as this may sometimes cause malfunction. Condensation is the phenomenon in which the vapor in the air is condensed into water drops, which attach to the surface of a metallic plate, etc. It often occurs when the ambient temperature changes suddenly, for example when the microscope digital camera DP21 is brought from cold outdoors into warm indoors.

4 Cautions for using

Caution on Image Data Storage

1. The recorded image data may be lost (destroyed) in the following cases. Note that Olympus will not assume any liabilities for the loss (destruction) of recorded data.
 - When the user or a third party services or repairs the equipment.
 - When the PC is shut down, the AC adapter is disconnected or the power cord is unplugged during recording or erasure (formatting) of the PC.
 - In case when continuing to save the data for the period exceeding the life time of data storage of USB memory, (approx. 1 to several years).
 - When the equipment fails.
 2. Please note if following cases may occur though the camera is working properly, the image restoration or the compensation for damages are not guaranteed.
 - The image is abnormal.
 - File properties e.g. file names, file time, etc. are abnormal.
 - The image is lost.
- ⊙ In general, as the data retention lifetime is set in the electronic memory media, e.g. USB memory, HDD, CD-R, DVD-R, etc., the saved files may be lost after several years.
- ⊙ The image data may be disappeared (destroyed) unexpectedly. Be sure to backup the data on regular base.
- ⊙ Make sure that there is no problem when acquiring the subjects before acquisition. Please note that even though the problem may occur caused by the acquired images, Olympus will not be responsible for these problems.

Restrictions in Use

1. The standard camera adapters are the U-TV1XC, U-TV0.5XC-3, U-TV0.63XC or the combination of U-TV1X-2 and U-CMAD3. The U-TV0.25XC, U-TV0.35XC (or a camera adapter with magnification below 0.5X), U-TV0.5XC and GX-TV0.5XC-DP cannot be used because of optical performance problems.
2. When the DP21 is connected to the rear port of the U-DPT or U-MPH, the peripheral part of the recorded image may be deteriorated due to the optical performance of the U-DPT or U-MPH.
3. When two or more intermediate attachments are used, the peripheral part of the image may become dark or obscured depending on the observation tube and objective in use.
 - * Example of two intermediate attachments with BX microscope:
Vertical illuminator + Intermediate attachment with a length equivalent to the U-CA
4. When a fluorescent lamp illumination or an illumination stand of the SZX/SZX2 series is used, the image may flicker.
5. No evaluation has been done enough for combinations of this product and non-Olympus microscopes.
 - When a non-Olympus microscope or a commercially available C-mount lens is used, problems due to the optical adaptability such as shading may be observed. If a commercially available C-mount lens is used, the thread projection and lens projection from the C-mount body attaching section should be no more than 4.5 mm.
6. When the specimen has a low contrast (near transparent) or high reflectance (mirror status) and the aperture iris diaphragm is stopped down near the smallest aperture, spot flare may be noticeable.
7. When the edge of a non-transmitting object is observed under the STM6 transmitted illumination, flare may be noticeable due to the difference in brightness between the transmitted sections (over-exposure) and non-transmitting section (under-exposure).

To reduce the flare, set a lower exposure using the exposure adjustment function or setting the exposure manually.

(Details of STM6 combination)

Edge observation using the MM6-OB3X/5X/10X objective in combination with the MM6C-VL/MM6-ETR

8. When the SZX16 is combined, the peripheral brightness may become insufficient with a zoom ratio of no more than 10 x.
9. The image of dark specimens under reflected light or in the darkfield (specimens that need exposure of 1/2 sec. or more at ISO 100 equivalent) cannot be recorded. When recording the image of the particularly dark specimen, the lack of pixel caused by the cosmic ray effect or the constant bright point may be noticeable, but they are not failures.
10. Specimens with a distribution that is not suitable for center averaged metering require spot metering or exposure adjustment.
11. When electronic zoom is used for magnification display during focusing, the image may become noticeably coarse with certain samples.
12. The live image frame rate of 15 fps is possible when the exposure time is no more than 1/15 sec.
13. The traceability of auto white balance control deteriorates when the specimen contains little white area.
14. We recommend you to use the same live resolution as the image quality mode during recording. If the live resolution is different from the image quality mode, the measurement result may be shifted.
15. If the microscope light source is set too bright, color unevenness may occur in photographed images. Should this be the case, adjust the brightness to an appropriate level (for example, by lowering the lamp voltage or by inserting a neutral filter).
16. When combining to CX or CKX, set the light volume of the microscope illumination closer to the maximum level in order to gain the best color reproduction.
17. To prevent destruction of the recorded image (data), never perform the following action during recording of a still image or movie;
 - turning power OFF;
 - disconnecting the AC adapter;
 - disconnecting the camera cable;

5 PC and Software

System Compatibility

1. The OLYMPUS specific IEEE 1394 device driver must be installed to operate DP21. When this driver is installed, other 1394 devices except OLYMPUS digital camera for microscope cannot be operated though connected. (Note that DP25 cannot be used.)
2. The OLYMPUS specific IEEE 1394 device driver can be installed at the same time when installing cellSens / OLYMPUS Stream.
3. To connect other 1394 devices, the OLYMPUS specific IEEE 1394 device driver must be uninstalled. (When the OLYMPUS specific IEEE 1394 device driver is uninstalled, DP21 cannot be operated.)
4. When connecting the DP21 to the PC, connect the DP21's camera head directly to the IEEE 1394 connector of the PC. Connection through a commercially available IEEE 1394 hub or conversion connector may lead to malfunction.

Recommended operating environment

Common to Desktop PC/Laptop PC (except No. 6)

No.	Item	Operating Environment
1	PC	Intel Core i5, Intel Core i7, Intel Xeon®, (or compatible) 2 Memory
2	Memory	8 GB recommended (4GB minimum)
3	HD space	1 GB hard disk space for installation Recommended for high speed image acquisition: SSD hard disk
4	Display	1280 x 1024 (min. 1024 x 768) monitor resolution with 32-bit-video card with separate graphics memory (no integrated graphics processor with shared memory)
5	Drive	DVD-ROM drive
6	1394	1394 port x 1 <ul style="list-style-type: none">• Desktop PC: 9-pin 1394b port or 6-pin 1394a port• Laptop PC: 4-pin 1394a port (The AC adapter should be connected to the camera head)
7	PC input devices	minimum 2 button mouse, (recommended: 3 button mouse with wheel), Keyboard
8	OS	Microsoft® Windows® 7 Ultimate / Professional (32 bit / 64 bit) SP1 Microsoft® Windows® Vista Ultimate / Business (32 bit) SP2 Microsoft® Windows® XP Professional (32 bit) SP3
9	OS languages	Japanese, German, English, Chinese, Russian and all others using the Roman alphabet.
10	Web browser	IE8.0 or after

The fact that the recommended operating environment above is met does not necessary guarantee the availability of all of the operations that are usually available with the PC connection system.

Trademark information

Windows is a registered trademark of Microsoft Corporation, USA.

All of other brand names and product names mentioned in this manual are trademarks or registered trademarks of their respective owners.

Before installation

Windows® 7, Windows® Vista

Installation is impossible unless your user account is registered as a "Computer Administrator account."

If you are registered in the "Standard user account," please change it to the "Computer Administrator account."

(For the user account registration, refer to the manuals for your PC.)

Windows® XP

Installation is impossible unless your user account is registered as a "Computer Administrator account."

If you are registered in the "Restricted account," please change it to the "Computer Administrator account."

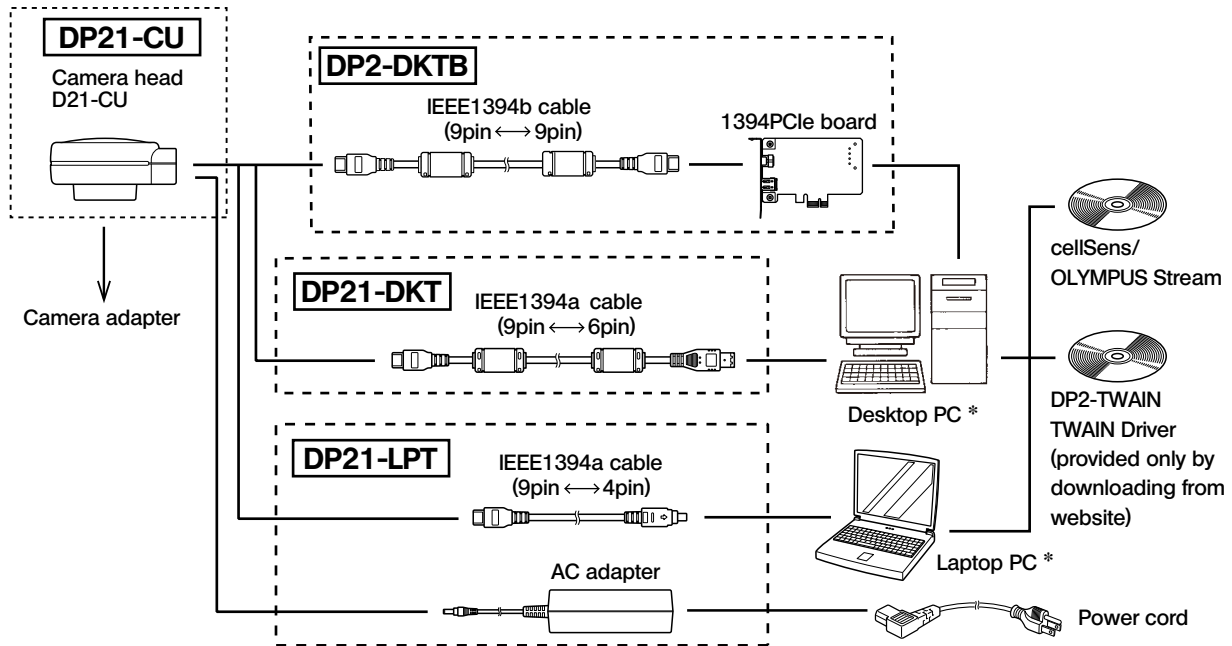
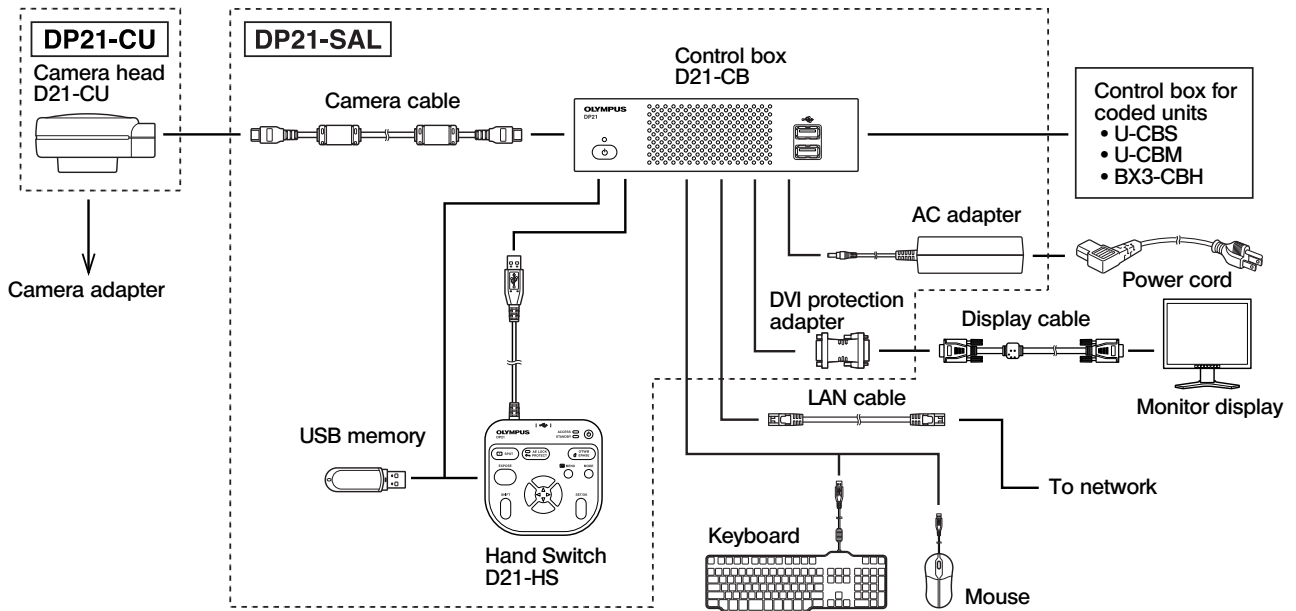
(For the user account registration, refer to the manuals for your PC.)

When using desktop PC or laptop PC

1. Olympus will not assume any liabilities for any damage due to the use or non-usability of this system, including compensation for the lost data.
2. When the HDD free space reduces, the data processing speed may slow extremely or errors may occur frequently. To prevent this, delete unnecessary data files frequently.
3. Be careful not to cut your fingers by a sharp edge in the computer.
4. The computer should be in compliance with the requirements of IEC60950 or CISPR22/24.

1 SYSTEM CHART

© If the camera head D21-CU is combined with standalone connection kit DP21-SAL, check the instructions of DP21-SAL as well.



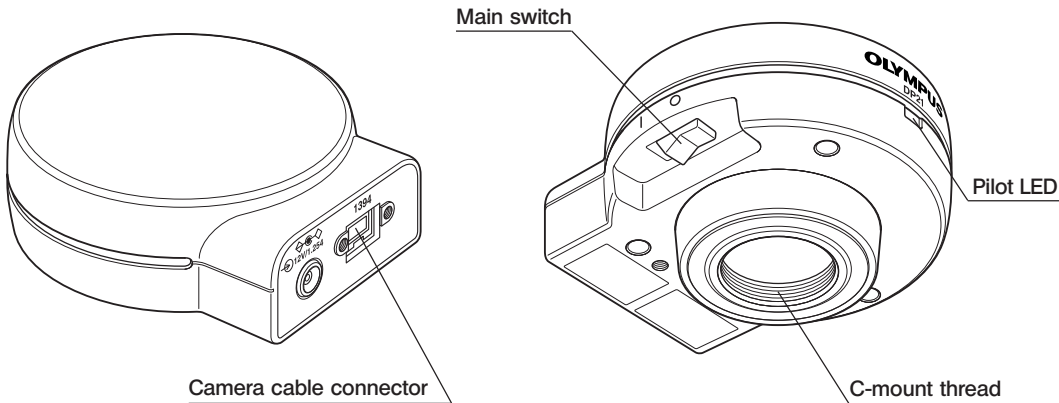
* DP21 combined with certain PCs may not be operated properly. Confirm PCs whose actions have already been checked in website.

© Consult Olympus for the microscope and camera adapter to be used together.

© Depending on PC to be connected, IEEE 1394 PCI board or PC card (Express card) may be required separately.

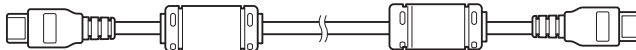
2 MODULE NOMENCLATURE

Camera Head

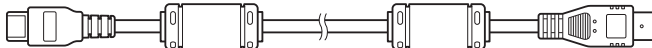


Camera Cable

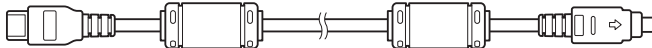
Attached with DP2-DKTB,
DP2-PC-S-M or DP21-SAL
(9pin - 9pin)



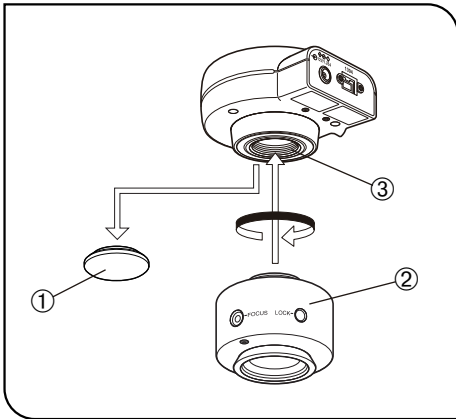
Attached with DP21-DKT
(9pin - 6pin)



Attached with DP21-LPT
(9pin - 4pin)



3 INSTALLATION



1 Installing the Camera Head

CAUTION

- The C-mount thread has a sharp edge that should not be touched.
- The camera head and camera adapter are precision modules. Be careful not to drop them during attaching or detaching.

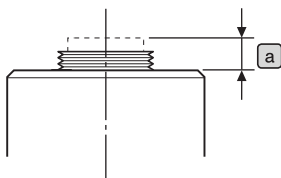
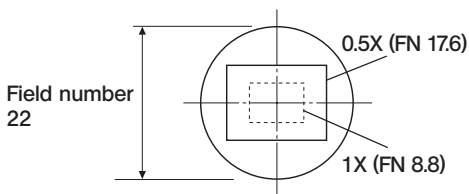
Ⓞ The following procedure deals with the case using the C-mount camera adapter U-TV0.5XC-3.

1. Remove the C-mount lens cap ①.
2. Screw in the U-TV0.5XC-3 C-mount camera adapter ② into the mount thread ③ at the bottom of the camera head.
3. Attach the C-mount camera adapter to the camera port of the microscope.

Ⓞ If the camera is attached in a wrong direction, the direction of the image observed through the eyepiece does not match with the direction of the image through the camera. After the camera is installed, compare the image observed through the eyepiece to the live image acquired by the camera, and rotate the camera adapter to match these images.

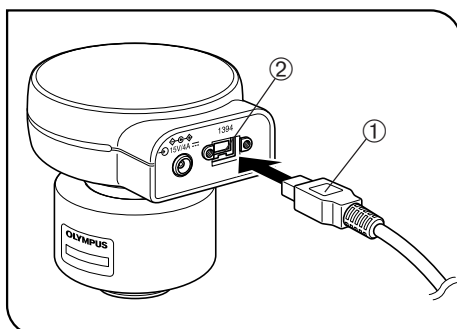
Ⓞ If the acquired field is as shown in the picture on the left use a camera adapter having magnification of 0.5X to 1X. (If a 0.35X camera adapter is used, the peripheral part of the image will be obscured.) If a C-mount camera adapter from other manufacturer than Olympus is used, the optical performance of the system may not be manifested fully.

Ⓞ The view field range illustrated in the picture on the left is a guide. Check the actual view field range by observing the specimen equipped with a scaling function, etc. before use.



CAUTION

- Be careful in using other manufacturer's C-mount camera adapter or C-mount lens having a thread length **a** over 4.5 mm. Otherwise, the threaded section will hit the inside of the camera head and cause damage to it.
- Be sure to adjust the parfocality between the C-mount camera adapter and the eyepieces. Otherwise, the image through the camera and the image through the eyepieces are not parfocal. For the parfocality adjustment method, refer to the instruction manual for the camera adapter in use.



2 Connecting the Camera Cable

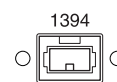
- CAUTION**
- The cords and cables are vulnerable to bend or twist. Do not apply excessive force to them.
 - Be sure to switch off the camera head and PC before connecting.

Ⓢ When connecting the cable, insert the connector plug in the proper direction.

(Example: Camera cable)

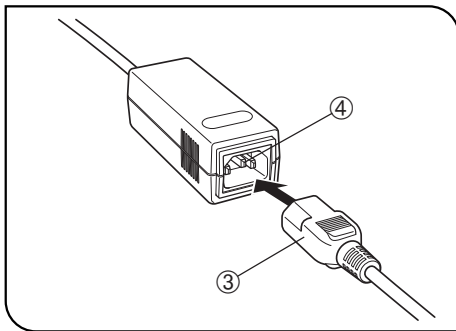
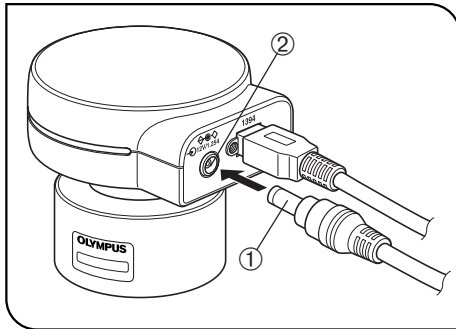


Cable side



Connector side

1. Insert the connector ① on one end of the camera cable into the connector ② on the camera head.
2. Insert the connector on the other end of the camera cable into the connector on the PC.



3 Connecting the AC adapter (necessary only when a laptop PC is connected)

- CAUTION**
- Always use the AC adapter provided by Olympus. Using an other AC adapter will result in malfunction or damage.
 - The cords and cables are vulnerable to bend or twist. Do not apply excessive force to them.

1. Insert the output plug ① of the AC adapter into the DC input connector ② of the camera head.
2. Insert the connector ③ of the power cord into the input connector ④ of the AC adapter.

- CAUTION**
- Always use the power cord provided by Olympus. If no power cord is provided with the camera head, please select the proper power cord by referring to chapter “PROPER SELECTION OF THE POWER SUPPLY CORD” at the end of this instruction manual.

3. Insert the power cord plug into the power outlet. Connect the power cord correctly and ensure that the grounding terminals of the power supply and wall outlet are properly connected. If the equipment is not grounded/earthed, Olympus can no longer warrant the electrical safety performance of the equipment.

- Ⓞ The AC adapter generates heat after long hours of use, but this is not malfunction.
- Ⓞ The AC adapter of the camera is required only when it is connected to a laptop PC. It is not necessary when it is connected to a desktop PC.
 - Connecting the power cord connector improperly will cause the system failure. Be sure to connect it properly.

Power supply to the camera

The camera head of the DP21 has main switch on it. Set this switch to ON when using the camera. The pilot LED on the camera head lights when power is supplied to the camera head.

When a desktop PC is connected

The camera is powered from the desktop PC so the AC adapter is not necessary. The camera is turned OFF automatically when the PC is shut down.

When a laptop PC is connected

Since the laptop PC cannot supply power, the AC adapter is necessary. Since the power is supplied from the AC adapter, the camera remains ON even when the PC is shut down. To turn the camera OFF, set its main switch to OFF.

- Ⓞ There is no problem in shutting down the laptop PC while leaving the camera power ON. The camera power is left ON until the main switch is set to OFF or the AC adapter is unplugged.

4 SOFTWARE

CAUTION

- When DP2-TWAIN or cellSens/OLYMPUS Stream is installed, the 1394 driver is also replaced with the dedicated driver for the DP21. When this driver is installed, other 1394 devices except Olympus Digital Camera for Microscope cannot be operated though connected. (Note that DP 25 cannot be used.)
- If you want to use an IEEE1394 device other than the DP21, open the Device Manager and update the driver software of "OLYMPUS(R) MICROSCOPE 1394 DIGITAL CAMERA SYSTEM" under "1394 Bus Host Controllers".

Before Installation

- Quit all running applications before installing software.
- The software cannot be installed unless the user account is registered as "computer administrator."
If the user account is registered as a "Restricted account," change it to the "Computer administrator" account.
(For the user account registration, refer to the instruction manuals for your computer.)
- When using a 1394PCle board, install it in the PC before installing software.

TWAIN Driver DP2-TWAIN

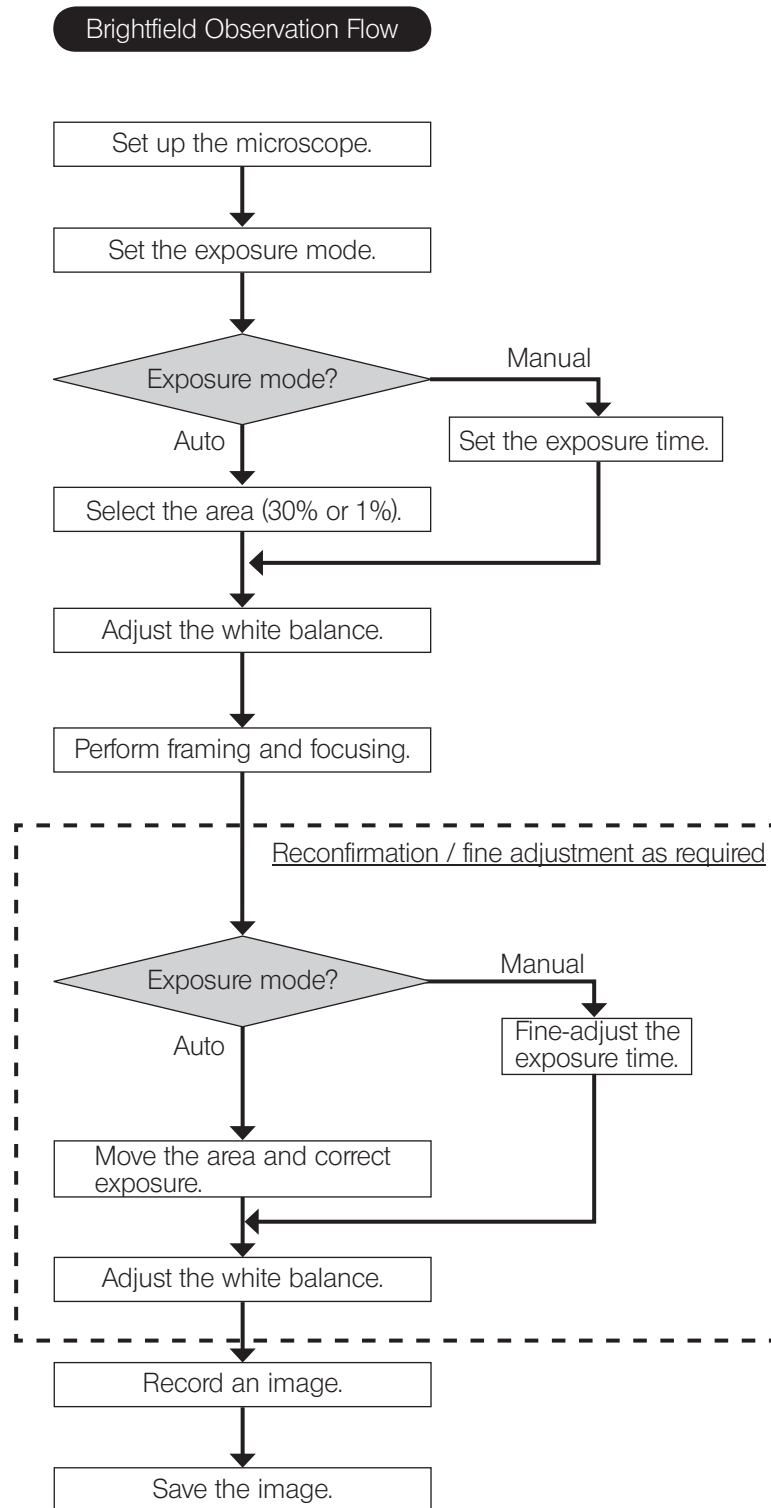
DP2-TWAIN is not included in this product. Download the installer from the following URL prior to use. For installation procedures, refer to the following URL.

[DP2-TWAIN Download Site]

- For Life Science
<http://microscope.olympus-global.com/en/ga/support/software/>
- For Industrial Solutions
<http://www.olympus-ims.com/en/service-and-support/downloads/>

5 IMAGE RECORDING PROCEDURE

For detail use procedures, refer to the Instruction Manual or Help of Software you will use.



6 SPECIFICATIONS

Item		Specifications
Image pickup device	Size	1/1.8-inch color CCD
	Effective pixels	2.01 million pixels (total pixels 2.11 million pixels)
	Scanning method	Progressive scanning
	Color filters	RGB primary color on-chip filters
	Recording area	704(H) x 5.28(V) mm, diagonal length 8.8 mm
	Max. recording pixels	1.92 million pixels (1600 x 1200)
Camera mount		C-mount
ISO speeds		100, 200, 400
Metering method		Center 1%, Center 30% average metering
Exposure control		AUTO / MANUAL AELock: Possible only during Auto Exposure. Exposure correction: ± 2 EV in 1/3 EV steps, possible only during Auto Exposure.
Exposure time		AUTO: 2 to 1/20,000 sec. MANUAL: 8 to 1/20,000 sec.
Image display speed (Frame rate)		Live image <ul style="list-style-type: none"> • When using the camera cable attached with DP2-DKTB (1394b connection) <ul style="list-style-type: none"> 15 fps (Displayed pixels 1600 x 1200) 27 fps (Displayed pixels 800 x 600) • When using the camera cable attached with DP21-DKT or DP21-LPT (1394a connection) <ul style="list-style-type: none"> 7.5 fps (Displayed pixels 1600 x 1200) 27 fps (Displayed pixels 800 x 600)
Input/output connectors		DC input: Main power supply Camera: IEEE 1394b
Image sizes (File formats)		Dependent on compatible application
Applicable OS		Microsoft® Windows® 7 Ultimate / Professional (32bit / 64bit) SP1 Microsoft® Windows® Vista Ultimate / Business (32bit) SP2 Microsoft® Windows® XP Professional (32bit) SP3
Dimensions and weight		84 (W) x 42.5 (H) x 84 (D) mm 261 g
Rating (AC adapter)		Output: 12 V \pm 1.25 A Input: 100-240 V \sim 47-63 Hz 0.4 A
Power consumption (Camera head)		Max. consumption: 2.6 W When the camera head is switched OFF: 0.1 W or less
Operating environment		
<ul style="list-style-type: none"> • Indoor use. • Altitude: Max. 2000 meters • Ambient temperature: 10 to 35 °C (50 to 95 °F) (without condensation) • Maximum relative humidity: 80% for temperatures up to 31 °C (88 °F), decreasing linearly though 70% at 34 °C (93 °F), 60% at 37°C (99°F), to 50% relative humidity at 40°C (104°F). • Supply voltage fluctuations; $\pm 10\%$. • Pollution degree: 2 (in accordance with IEC60664-1) • Installation/Overvoltage category: II (in accordance with IEC60664-1) 		

7 TROUBLESHOOTING GUIDE

Under certain conditions, performance of the camera may be adversely affected by factors other than defects. If problems occur, please review the following list and take remedial action as needed. If this digital camera is combined with standalone connection kit DP21-SAL, check the instruction manual of DP21-SAL as well.

If you cannot solve the problem after checking the entire list, please contact Olympus for assistance.

Problem	Cause	Remedy	Page
Camera head does not work.	The main switch of camera head is OFF.	Set the main switch of the camera head to ON.	9
	The AC adapter is connected improperly. *Only when using the camera cable (9pins-4pins).	Connect the AC adapter correctly to the camera head and plug the power cord firmly into a power outlet.	12
	The camera cable is connected improperly.	Connect the camera cable correctly.	11
Nothing is displayed on the display.	The display is not ON.	Turn the display ON.	—
	The display cable is connected improperly.	Connect the display cable correctly.	—
	The display resolution is set improperly.	Set the correct display resolution.	—
Live image is not displayed.	The camera cable is connected improperly.	Connect the camera cable correctly.	11
	The microscope illumination is off. The microscope is not set to the camera light path. The illumination or specimen focusing is adjusted improperly.	Turn on the microscope illumination, adjust the lighting and focusing correctly, and select the camera light path.	—
	The ISO speed or exposure time is set improperly.	Set the ISO speed, exposure mode, exposure time and level properly.	—
Still images cannot be recorded.	The DP2-TWAIN or cellSens / OLYMPUS stream is processing recording.	Wait until the recording processing completes before starting recording of the next image. In certain cases, it may be required to press the Cancel button on the status bar and record the image again.	—
	The cellSens / OLYMPUS stream is processing file save, etc.	Wait until processing completes before starting recording of the next image.	—
	The computer memory is insufficient.	Exit from other software before retrying recording. Save the images which you did not save.	—

Problem	Cause	Remedy	Page
Picture is too bright.	Exposure correction is set in the + direction.	Set the desired exposure correction value.	—
	The metering area is set to a dark area outside the region of interest.	Move the metering area to the area where you want to obtain optimum exposure.	—
	AE lock, which was set when the exposure time was longer than the currently required exposure time, is active.	Cancel AE lock.	—
	The input highlight level adjustment is too high.	Reset the current level adjustment and adjust the optimum level again.	—
	The microscope illumination is too bright.	Reduce the microscope illumination intensity or engage an ND filter to reduce brightness.	—
Picture is too dark.	Exposure correction is set in the - direction.	Set the desired exposure correction value.	—
	The metering area is set to a bright area outside the region of interest.	Move the metering area to the area where you want to obtain optimum exposure.	—
	AE lock, which was set when the exposure time was shorter than the currently required exposure time, is active.	Cancel AE lock.	—
	The output highlight level adjustment is too low.	Reset the current level adjustment and adjust the optimum level again.	—
	The microscope illumination is too dark.	Increase the microscope illumination intensity or disengage the existing ND filter to increase brightness.	—
The colors in the picture are strange.	The area selected in white balance adjustment was improper.	Select a white area as the rectangular white balance adjustment area.	—
	The RGB balance is adjusted improperly in manual white balance adjustment.	Perform manual white balance adjustment to adjust the RGB color balance to obtain optimum colors.	—
	The screen color setting of the computer is incorrect.	Set the computer display color to 24-bit color or higher. The recommended setting is 32-bit color.	—

Problem	Cause	Remedy	Page
The picture is not in focus.	The microscope is not focused properly.	Adjust the focus correctly with the fine adjustment knob.	—
	The parfocality is not adjusted properly.	Adjust parfocality with the camera adapter.	—
	The aperture iris diaphragm of the condenser is open too wide.	Close the aperture iris diaphragm a little.	—
	The field iris diaphragm is not set properly.	Adjust the field iris diaphragm until the image circumscribes the field of view.	—
	Lens components of the microscope are contaminated or the cover glass on the front of the camera is stained.	Clean the objective, photography lens, condenser and/or window lens of the microscope, or clean the cover glass on the bottom of the camera head.	3
	The microscope and/or camera are subjected to vibration during recording.	Record images in an environment in which the microscope and camera are not vibrated. It is effective to use an anti-vibration bench.	—
The DP2-TWAIN or cellSens / OLYMPUS Stream window is not displayed correctly or the menu characters are not displayed correctly.	The resolution setting of the screen is incorrect.	Set the resolution setting at 1280 x 1024 or more in the properties of the screen.	—
	The large font has been selected for the font size of the screen.	Select a small font in the properties of the screen.	—
Another 1394 device cannot be used simultaneously.	The DP21-dedicated driver is installed.	When the DP21 is connected to a PC, other 1394 devices cannot be used on the same PC.	6,13

■ 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	6A minimum
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 the agencies listed in Table 1. In case you are unable to buy locally 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
Argentina	IRAM		Italy	IMQ	
Australia	SAA		Japan	JET, JQA	
Austria	ÖVE		Netherlands	KEMA	
Belgium	CEBEC		Norway	NEMKO	
Canada	CSA		Spain	AEE	
Denmark	DEMKO		Sweden	SEMKO	
Finland	FEI		Switzerland	SEV	
France	UTE		United Kingdom	ASTA BSI	
Germany	VDE		USA.	UL	
Ireland	NSAI				

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)	CEBEC	⟨HAR⟩	10	30	10
Verband Deutscher Elektrotechniker (VDE) e.V. Prüfstelle	⟨VDE⟩	⟨HAR⟩	30	10	10
Union Technique de l'Electricite' (UTE)	USE	⟨HAR⟩	30	10	30
Instituto Italiano del Marchio di Qualita' (IMQ)	IEMMEQU	⟨HAR⟩	10	30	50
British Approvals Service for Electric Cables (BASEC)	BASEC	⟨HAR⟩	10	10	30
N.V. KEMA	KEMA-KEUR	⟨HAR⟩	10	30	30
SEMKO AB Svenska Elektriska Materielkontrollanstalter	SEMKO	⟨HAR⟩	10	10	50
Österreichischer Verband für Elektrotechnik (ÖVE)	⟨ÖVE⟩	⟨HAR⟩	30	10	50
Danmarks Elektriske Materialkontroll (DEMKO)	⟨DEMKO⟩	⟨HAR⟩	30	10	30
National Standards Authority of Ireland (NSAI)	⟨NSAI⟩	⟨HAR⟩	30	30	50
Norges Elektriske Materielkontroll (NEMKO)	NEMKO	⟨HAR⟩	10	10	70
Asociacion Electrotecnica Y Electronica Espanola (AEE)	⟨UNED⟩	⟨HAR⟩	30	10	70
Hellenic Organization for Standardization (ELOT)	ELOT	⟨HAR⟩	30	30	70
Instituto Portages 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)
Canadian Standards Association (CSA)

SV, SVT, SJ or SJT, 3 X 18AWG
SV, SVT, SJ or SJT, 3 X 18AWG

MEMO

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