

# OLYMPUS®

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ryf ag  
**ryf**  
Ryf AG  
Bettlachstrasse 2  
2540 Grenchen  
tel 032 654 21 00  
fax 032 654 21 09  
[www.ryfag.ch](http://www.ryfag.ch)

*Camera Mount Adapter Series*  
*Camera Adapter Series*

## INSTRUCTIONS

# CAMERA ADAPTER SYSTEM

This system employs a UIS2/UIS (Universal Infinity System) optical design, and should be used only with UIS2/UIS type microscope frames, eyepieces, objectives and condensers. Less than optimum performance may result if inappropriate accessories are used. To ensure the safety, obtain optimum performance and to familiarize yourself fully with the use of this system, we recommend that you study this manual thoroughly before operating the system. Retain this instruction manual in an easily accessible place near the work desk for future reference.



A X 5 8 9 6



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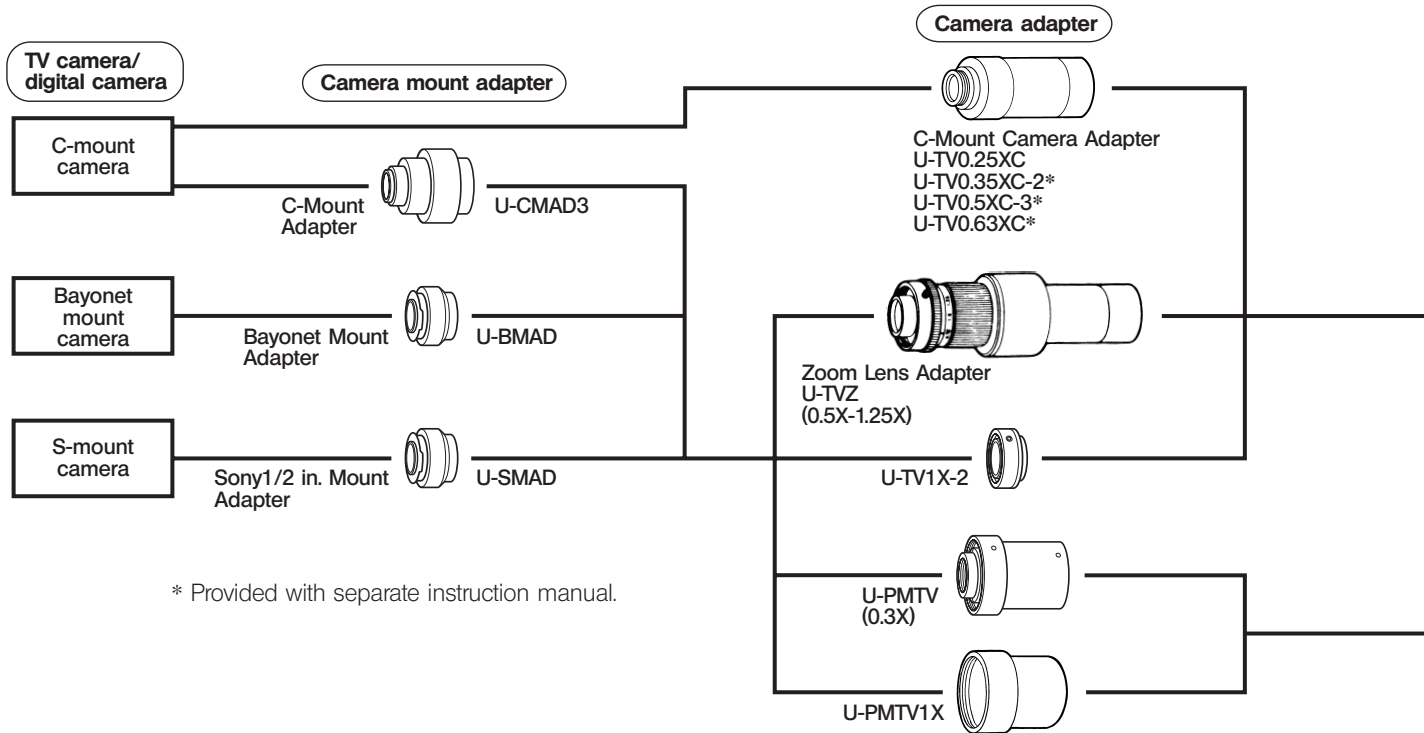
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# 1 CAMERA ADAPTER SYSTEM

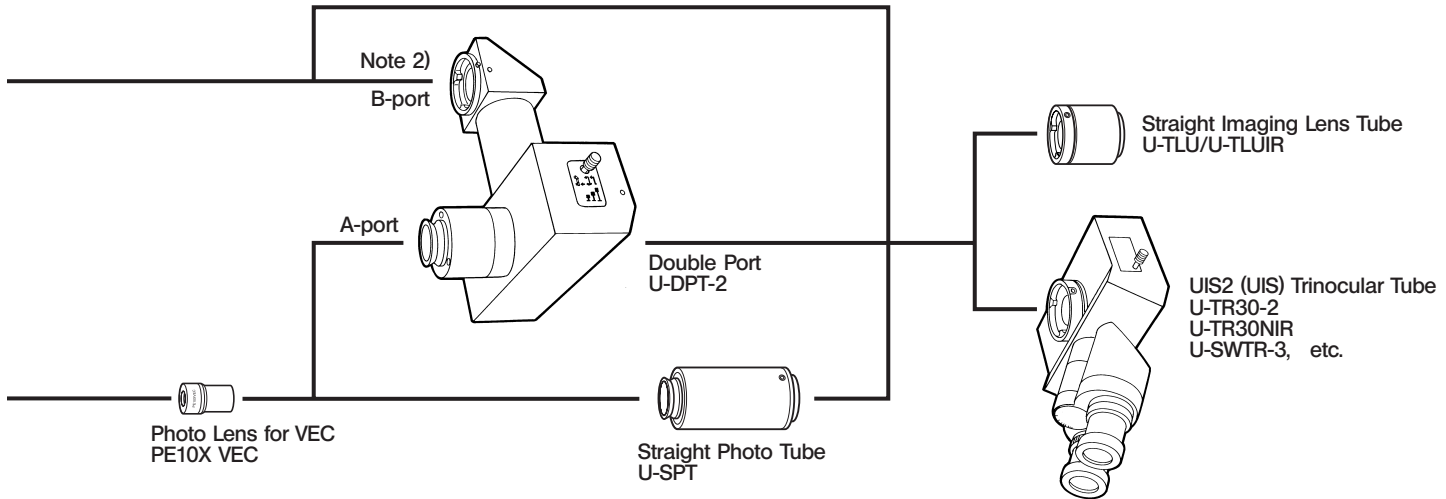
© A variety of adapters are available for different TV cameras and digital cameras, allowing a wide variety of options in TV observation or photographic work.



Note 1) Restrictions on camera

- A camera cannot be used if its C-mount plane is located at a lower level than the camera body surface.
- If the camera is larger by more than 68 mm in the lateral direction from the optical direction, the camera may interfere with the microscope when it is mounted on a trinocular observation tube, unless the camera adapter (or the camera mount adapter) is long enough. Also, when the camera is mounted on the side port of the IX2 series, the camera contacts the desktop if it is larger by more than 89 mm in the bottom direction from the optical axis.
- When a camera has a larger image sensor than the specified size (see page 3), the light in the image peripheries may be insufficient or the peripheral parts of image may be cut off.

Note 2) If a camera adapter with a magnification below 0.63X is used, partial blur may result.



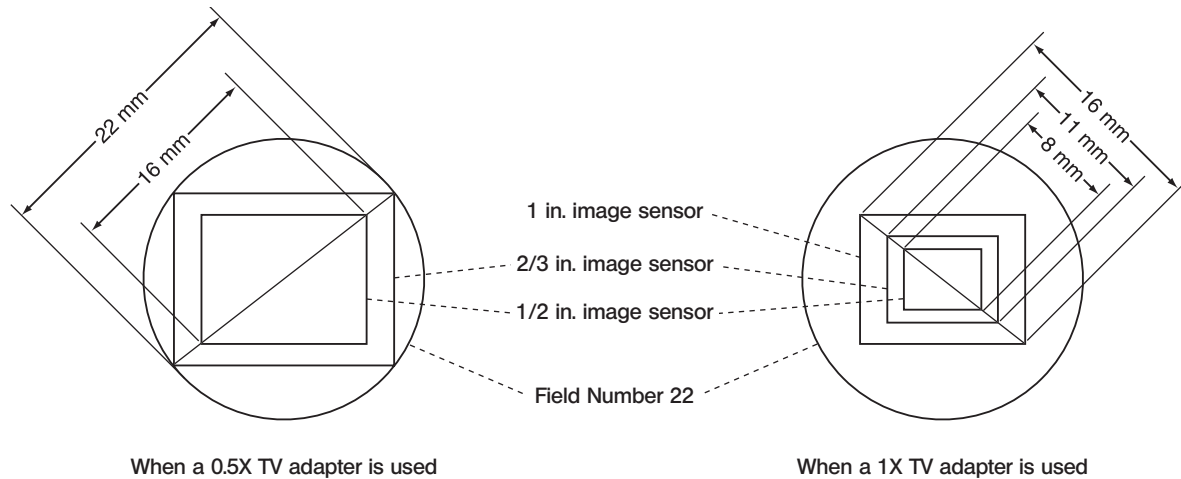
## 2 CAMERA OBSERVATION/RECORDING

A TV camera or digital camera can be mounted on the straight tube of a trinocular tube (or the U-DTP-2 double port or the U-TLU straight imaging lens tube) using a camera adapter (a camera mount adapter or the U-SPT straight photo tube is also required with certain cameras).

### 1 Camera Adapter Magnification

The magnification of the camera adapter is determined according to the diagonal length of the image sensor device of the TV camera or digital camera.

(Example) When the 10X eyepieces are used and the field number is 22, the image range of the TV/digital camera is determined as follows.



**2 Camera Recording Magnification**

Objective magnification x Camera adapter magnification x 10 (only when the PE10X VEC is used)

**3 Monitor Observation Magnification**

$$\text{Camera recording magnification (see above)} \times \frac{\text{Monitor diagonal length* (mm)}}{\text{Image sensor diagonal length* (mm)}}$$

\* The diagonal lengths of monitors and image sensors are variable between manufacturers. Note that they are nominal values and that the above formula does not give a very accurate monitor observation magnification.

<< Nominal diagonal length of image sensors (Typical values) >>

1 in. → 16 mm. 2/3 in. → 11 mm. 1/2 in. → 8 mm. 1/3 in. → 6 mm. 1/4 in. → 4 mm.

# 3 ASSEMBLY

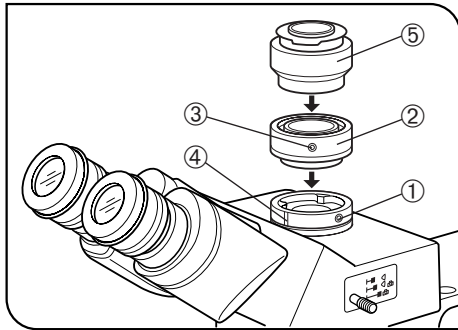


Fig. 1

## 1 System Without Using the PE10X VEC

(Fig. 1)

1. Using the Allen screwdriver provided with the microscope frame, loosen clamping screw ① of the straight tube of trinocular tube (the U-TLU or the B-port of the U-DPT-2).
2. Fit the round dovetail at the bottom of the camera adapter ② into the straight tube and tighten clamping screw ①.

Ⓢ The camera mount adapter is not necessary when the camera adapter has a C-mount.

3. Using the Allen screwdriver, loosen the camera mount adapter clamping screw ③ of the camera adapter.

When the U-TVZ zoom lens type camera adapter is used, align the index ④ on the straight tube of trinocular tube with the index on the camera adapter. If the indices are not aligned, centering error may be produced during zooming.

4. Screw the camera mount adapter ⑤ matching the camera in use into the camera adapter (by turning the adapter clockwise). Do not tighten it because this will later be adjusted.

5. Tighten clamping screw ③ temporarily.

Ⓢ The load of the B-port of the U-DPT-2 should be no more than 5 kg including the weights of the camera adapter and the TV camera or digital camera.



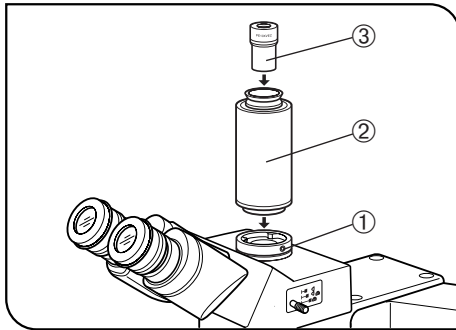


Fig. 2

## 2 System Using the PE10X VEC

(Fig. 2)

1. Using the Allen screwdriver provided with the microscope frame, loosen clamping screw ① of the straight tube of trinocular tube (or the U-TLU).
2. Fit the round dovetail at the bottom of the U-SPT straight photo tube ② into the straight tube and tighten clamping screw ①.
- Ⓞ The U-SPT is not necessary when the A-port of U-DPT-2 is used.
3. Gently insert the PE10X VEC ③ all the way into the U-SPT or the A-port of U-DPT-2.
4. Mount the camera adapter and camera mount adapter in the same way as the procedure in the previous section.

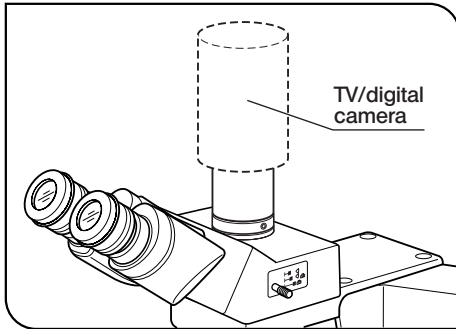


Fig. 3

3

### Mounting the TV Camera/Digital Camera

(Fig. 3)

#### Bayonet-Mount Camera

- Remove the lens or viewfinder from the camera.
- Align the positioning groove on the camera with the pin on the mount adapter and turn in the camera firmly.

#### C-Mount Camera

Screw the C-mount camera into the mount adapter and secure firmly.

# 4 PROCEDURES FOR USE

©Refer to the operating instructions provided with the TV camera or digital camera and the monitor.

## 1 Adjusting the Microscope Frame

Turn on the light of the microscope and make adjustments necessary to enable observation.

## 2 Adjusting the TV Camera/Digital Camera and Monitor

Referring to the operating instructions for the camera and monitor, adjust the image color, etc.

©The center of the image in the eyepieces may not match that on the monitor. This is related to the adjustment of the camera's image sensor, and is not due to the components of the microscope system.

## 3 Adjusting the Parfocality Between Microscope and Monitor Images

**NOTE** The parfocality adjustment is invalid if the eyepiece diopter is not adjusted properly.

1. Push in the light path selector of the trinocular tube to select the observation light path.
2. Using a high-power objective, look into the eyepieces and bring the specimen into accurate focus.
3. Select a low-power objective and push out the light path selector of the trinocular tube to select the camera light path.
4. Since the camera is connected during the parfocality adjustment, the camera should not be rotated. Therefore, the parfocality adjustment procedures described on the following pages refer to the method by varying the length of each camera adapter.

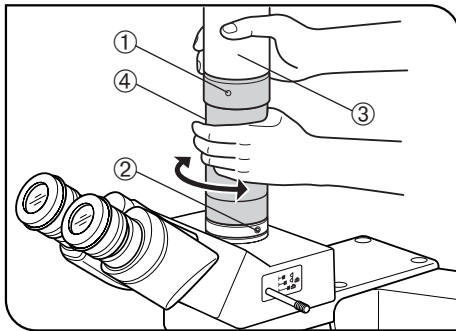


Fig. 4

**With the U-TV0.35XC-2, U-TV0.5XC-3 or U-TV0.63XC**

Refer to the operating instruction provided with the camera adapter.

**With the U-TV1X-2 or U-TV0.25XC (Fig. 4)**

Loosen clamping screws ① and ② using the Allen screwdriver. While observing the monitor image and keeping the camera mount adapter ③ stationary, rotate the camera adapter ④ until the image is in focus and then tighten screws ① and ② again.

Ⓞ The shape of the microscope frame may make it impossible to tighten clamping screw ①. In this event, note the current position of the clamping screws, rotate only the camera adapter ④ and then tighten screw ①. Then return to the original position and tighten screw ②.

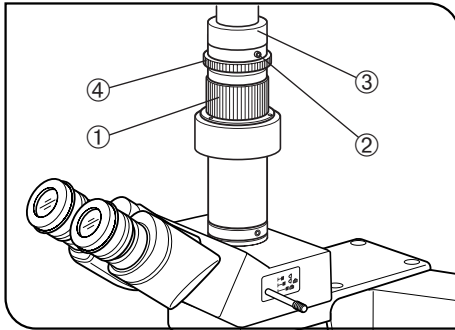


Fig. 5

#### With the U-TVZ (Fig. 5)

⊙ When the zoom lens type camera adapter is used, focusing error is produced as a result of zooming. Therefore, this adjustment should be more precise than the adjustments with other camera adapters.

1. Perform the eyepiece diopter adjustment.
  2. Looking through the eyepieces, bring the specimen into precise focus.
  3. Rotate the zoom ring ① to the 0.5X position.
  4. Loosen clamping screw ② on the upper part of the zoom lens using the Allen screwdriver. While observing the monitor image and keeping the camera mount adapter ③ stationary, turn the focusing ring ④ to focus the image.
  5. Rotate the zoom ring ① to the 1.25X position and confirm that the monitor image does not drift out of focus.
- ⊙ If the monitor image is out of focus after changing the magnification, repeat steps 1 through 5.
6. Tighten clamping screw ② securely.
- ⊙ If the clamping screw ② is in a position where tightening is not possible, follow the procedure for the U-TV1X-2.

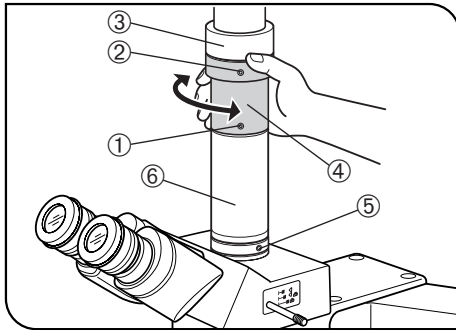


Fig. 6

#### With the U-SPT (Fig. 6)

Loosen clamping screws ① and ② using the Allen screwdriver. While observing the monitor image and keeping the camera mount adapter ③ stationary, turn the camera adapter ④ until the image is in focus and then tighten screws ① and ②.

- Ⓞ If clamping screws ① and ② are in positions where they cannot be tightened, loosen clamping screw ⑤, rotate only the U-SPT ⑥ and then tighten screws ① and ②. Then return the U-SPT to the original position and tighten screw ⑤.

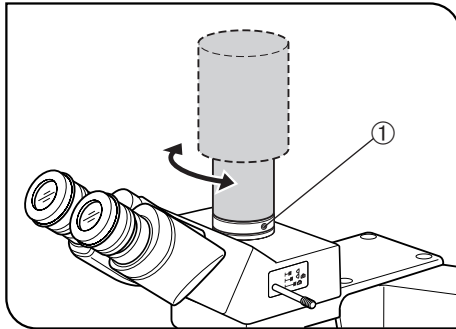


Fig. 7

#### 4 Rotating the Camera

(Figs. 7 &amp; 8)

1. When the zoom lens type camera adapter is not used:  
Loosen clamping screw ① of the straight tube of trinocular tube, rotate the camera, and tighten screw ① again. (Fig. 7)
2. When the zoom lens type camera adapter is used:  
Loosen clamping screw ② on the upper part of the zoom lens, rotate the camera mount adapter ③ and focusing ring ④ together, and tighten screw ② again. (Fig. 8)

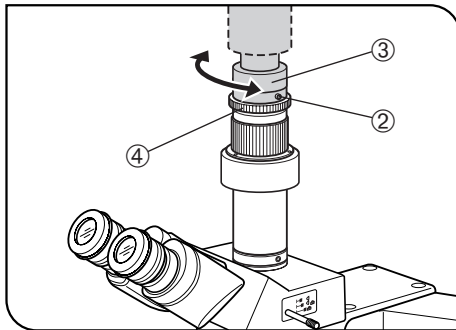


Fig. 8

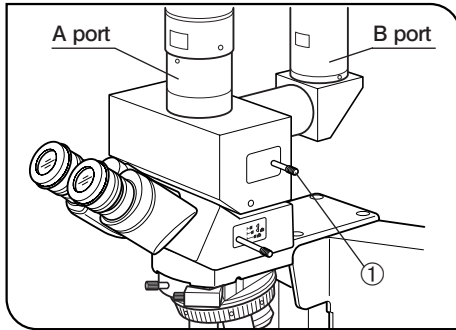





Fig. 9

## 5 Selecting the Light Path of the U-DTP-2 (Fig. 9)

Select the desired light path by sliding light path selector lever ①.

Light path selector lever	Marking	Illumination ratio
Pushed in	 <b>A</b>	A: 100%.
Middle position	 <b>A B</b>	A: 50%. B: 50%.
Pulled out	 <b>B</b>	B: 100%.

★ Since overall balance of the microscope system is adversely affected when a heavy TV camera is mounted on an observation tube, take a measure for preventing the set-up from accidentally tipping by making use of the tripod thread on the bottom of the camera.



# 5 TROUBLESHOOTING GUIDE

Under certain conditions, performance of the system may be adversely affected by factors other than defects. If problems occur, please review the following list and take remedial action as needed. If you cannot solve the problem after checking the entire list, please contact Olympus for assistance.

Problem	Cause	Remedy	Page
Dust is visible. 1. Dust moves when the specimen is moved. 2. Dust moves when the camera is rotated.	1. Dust adhering to the specimen. 2. Dust adhering to the camera.	Clean.	-
Peripheries of monitor image are cut off.	The camera adapter magnification does not match the image sensor size.	Use an optimum camera adapter.	3
Poor color reproduction.	White balance is not adjusted.	Adjust as required.	8
	Monitor tone is not adjusted.	Adjust as required.	8
Image is not focused.	The parfocality is adjusted improperly.	Adjust correctly.	8-11
Monitor image is white and invisible.	The camera sensitivity is too high or the camera does not have the auto brightness control facility.	Reduce the microscope's illumination.	-

# *MEMO*



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2540 Grenchen  
tel 032 654 21 00  
fax 032 654 21 09

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