

INSTRUCTIONS

U-FWT/FWR/FWO

TRANSMITTED LIGHT/REFLECTED LIGHT/OBSERVATION FILTER WHEELS

This instruction manual is for the Olympus U-FWT/FWR/FWO Transmitted Light/Reflected Light/Observation Filter Wheels. To ensure the safety, obtain optimum performance, and to familiarize yourself fully with the use of this unit, we recommend that you study this manual thoroughly before operating the unit. Retain this instruction manual in an easily accessible place near the work desk for future reference.

Optical Microscope Accessory



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This product is a part of the system product which complies with the CE marking.
Please refer to the instruction manual of your system product for the safety instructions related to the CE marking.



In accordance with European Directive 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.

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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If you have not completed filter mounting and its installation on the microscope, refer to Chapter 3, "ASSEMBLY" (pages 4 to 8) first.

IMPORTANT – Be sure to read this chapter for safe use of the equipment. –	1-2
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- 1** Inserting the Filters in the Filter Wheel
- 2** Mounting the Filter Wheel (U-FWT/FWR/FWO) on the Microscope

IMPORTANT

These filter wheels are designed for use in motorized filter switching operation using the BX-UCB, based on PC control using the BX2 software for PC or control assignment to the U-HSTR2 hand switch. For the BX-UCB and U-HSTR2, refer to their respective instruction manuals.

Safety Precautions

1. Be sure to set the main switch of the BX-UCB control box to “○” (OFF) or unplug its power cord before connecting the connection cable of the filter wheel to the BX-UCB.
2. Remove the filter wheel from the microscope when replacing filters.
3. When carrying the microscope system, do not hold it by the U-FWT filter wheel. To prevent danger, be sure to hold it by the base.
4. When using the U-FWR motorized filter wheel for reflected light observation, remove the push ring driver from the position where it is attached by magnetism in advance to prevent it from dropping.
If the driver drops in a certain place, an electric shock and/or burns may result.

1 Getting Ready

1. A filter wheel is a precision instrument. Handle it with care and avoid subjecting it to sudden or severe impact, and connect cables gently.
2. Do not use the filter wheel where it is subjected to direct sunlight, high temperature and humidity, dust or vibrations.
3. Never attempt to disassemble the filter wheel unit to prevent malfunction.
4. In super-widefield observation (FN 26.5) using a filter wheel, the peripheral area of the field of view may be obscured or cut off.
5. Due to the space restrictions, the condenser which can be used in combination with the U-FWT transmitted light filter wheel is only the U-SC3, U-AAC or U-UCD8A.
6. When a $\phi 32$ mm filter is used with the U-FWT or the U-FWO, ghost and flare may become conspicuous if the specimen has high contrast and the filter has high reflectance.

2

Caution

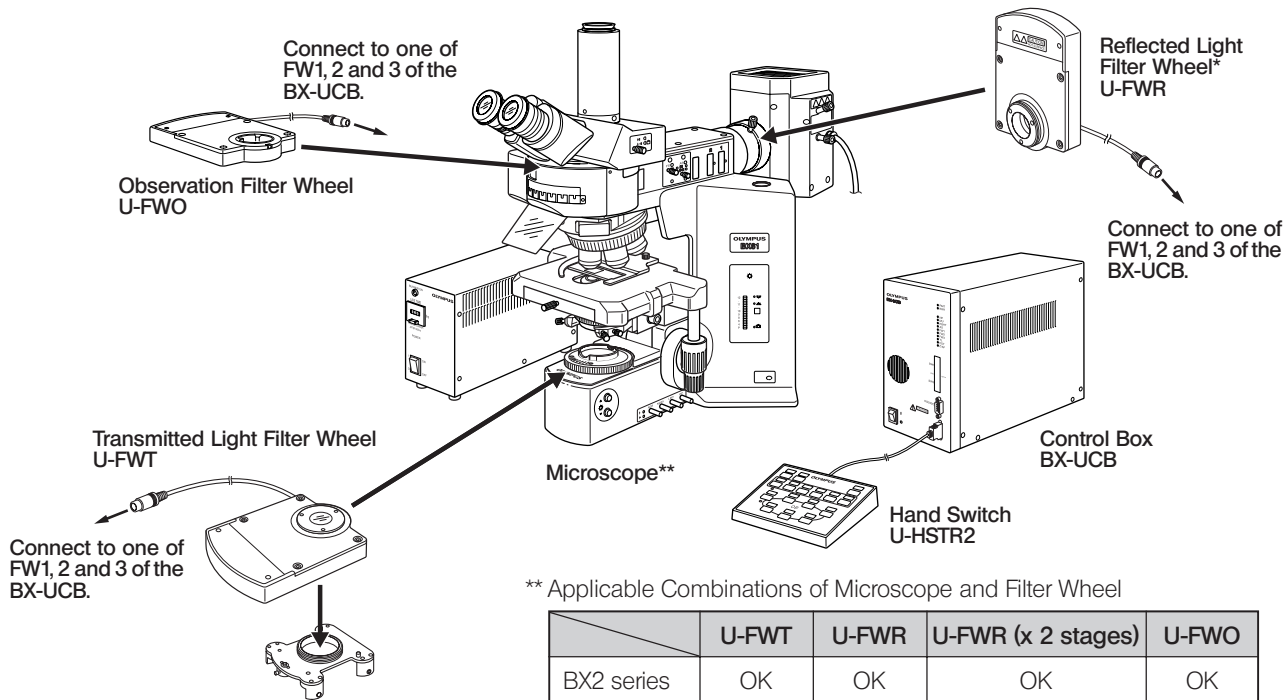
If this unit is used in a manner not specified by this manual, the safety of the user may be imperiled. In addition, the equipment may also be damaged. Always use the equipment as outlined in this instruction manual.

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

- ▲ : Indicates that failure to follow the instructions in the warning could result in bodily harm to the user and/or damage to equipment (including objects in the vicinity of the equipment).
- ★ : Indicates that failure to follow the instructions could result in damage to equipment.
- ◎ : Indicates commentary (for ease of operation and maintenance).

1 SYSTEM DIAGRAM

* The U-ULH (mercury/xenon) system cannot be combined with the U-FWR due to collector lens interference.



** Applicable Combinations of Microscope and Filter Wheel

	U-FWT	U-FWR	U-FWR (x 2 stages)	U-FWO
BX2 series	OK	OK	OK	OK
BX series	No	OK	OK	OK
AX series	No	OK	No	OK ^(Note)
IX/IX2 series	No	OK	OK	OK

(Note) Cannot be mounted on the AX80.

2 VARIOUS MICROSCOPY PROCEDURES

- Using the BX2 software for PC (CD-ROM), control the filters from your PC. (automatic switching/programmed control)
- Perform required assignment to the buttons of the U-HSTR2 hand switch and control the filters from the hand switch.

3 ASSEMBLY

©When connection of all cables including that of the filter wheel have completed, bundle the cables using the cord clamps provided with the BX-UCB so that they do not come in the way of operation.

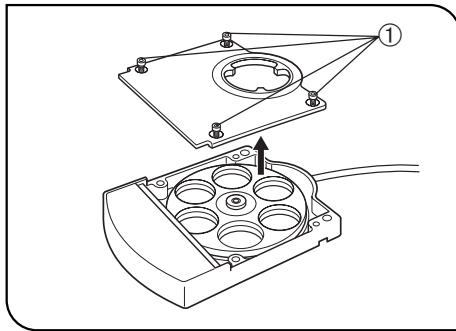


Fig. 1

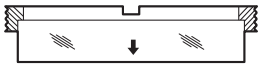
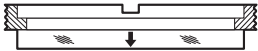
1 Inserting the Filters in the Filter Wheel

(Figs. 1 & 2)

©With the U-FWT, the function of the U-UCD8A motorized condenser can be extended by attaching the U-FWCO1.25X low-magnification correction lens and U-FW32PO polarizer in addition to the filter wheel.

1. Loosen the 4 filter wheel cover clamping screws ① using the Allen screwdriver provided with the microscope, then remove the cover.

©Filters with up to 32 mm diameter (25 mm filters can also be acceptable by using conversion adapters*) and 6 mm thickness can be mounted on the filter wheel. The orientation of each push ring should be determined according to the filter thickness as shown in the table on the next page.

Filter Thickness	Push Ring Orientation	Notes
<ul style="list-style-type: none"> • 4 mm or more • U-FWCO1.25X • U-FW32PO 		<ul style="list-style-type: none"> • Mount the U-FWCO1.25X so that the side with 29.6 mm diameter faces downward. • Be sure to mount the U-FW32PO in hole No.1. (While aligning the indexes with each other, align the positioning pin with the groove.)
<ul style="list-style-type: none"> • Below 4 mm • Conversion adapter* 		<ul style="list-style-type: none"> * Six conversion adapters are provided for each of U-FWR/FWO.

◎The above procedures apply when a $\phi 25$ mm filter is mounted on the conversion adapter.

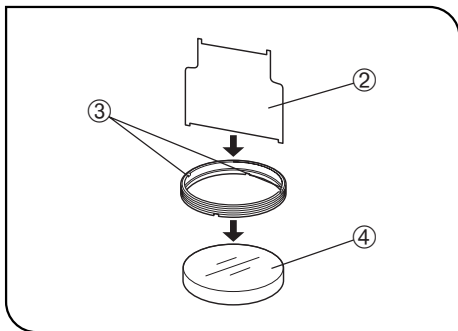


Fig. 2

2. By inserting the push ring driver ② which is attached by magnetic absorption to the filter wheel into the slit ③ on the push ring, insert the ring clockwise the clamp the filter ④.

◎When attaching a 25 mm filter on a conversion adapter, use the smaller blade of the ring driver ②.

To prevent flare, the filter insertion section of conversion adapters is tilted by 5°. Take care of the tilting when attaching a filter.

◎Barrier filters and excitation filters have arrow indexes on their side panels.

Barrier filter: Align the arrow with the insertion direction.

Excitation filter: Align the arrow with the opposite direction to the insertion direction.

3. After inserting all the required filters, attach the cover ① in the original position.

2 Mounting the Filter Wheel on the Microscope (Figs. 3 - 5)

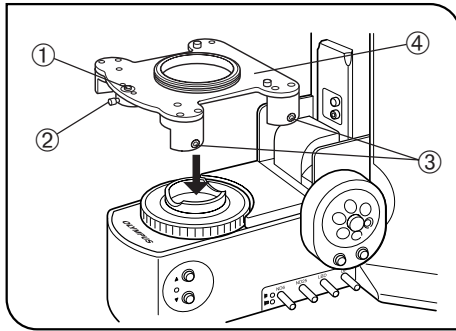


Fig. 3

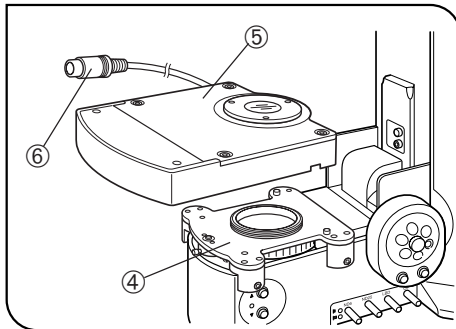


Fig. 4

U-FWT Filter Wheel (Figs. 3 & 4)

Ⓞ The U-FWT can be mounted only to a BX2 series microscope (BX41/51/52/61/62 microscope frame compatible with reflected light illumination).

1. Loosen the clamping screw ② of the lift prevention pin ① using the Allen screwdriver.
2. Loosen the 4 clamping screws ③ on each side using the Allen screwdriver.
3. Fit the filter wheel mount ④ on the filter holder on the BX2 series microscope.
4. While pushing down the filter wheel mount, tighten the clamping screws ③ uniformly so that the filter wheel mount is parallel with the microscope base.
5. While pushing down the lift prevention pin ①, tighten the clamping screw ②.
6. Fit the filter wheel ⑤ on the filter wheel mount ④. During this, place the connection cable ⑥ in the cable groove on the back side of the filter wheel ⑤.
7. Tighten the clamping screws on the left side panel of the filter wheel using the Allen screwdriver.
8. Connect the connection cable ⑥ of filter wheel to one of connectors FW1, 2 and 3 on the BX-UCB.

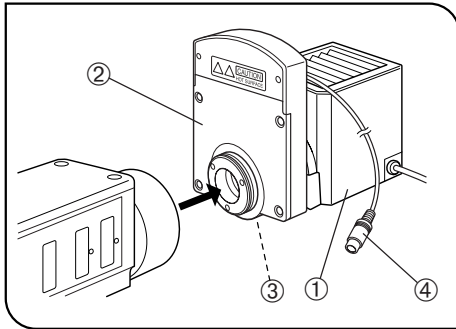


Fig. 5

U-FWR Filter Wheel (Fig. 5)

- ⊙ The U-FWR can be mounted on a BX, BX2, AX, IX or IX2 series microscope while the projected part of the motor is positioned at the top. If there is no interference, however, the installation direction can be changed in any desired way without compromise in performance.
When using two U-FWR filter wheels in two stages (possible except with the AX series), one of them should be tilted to prevent interference with the projected part of the motor.
- ⊙ When a 25 mm filter is used, light amount becomes insufficient in the peripheral area of field in super widefield observation (FN26.5).
This is barely noticeable with FN22.

⚠ Heat Caution

Since the U-FWR is mounted near the lamp housing, its surface becomes extremely hot.

You may accidentally touch the U-FWR when operating the collector lens focusing knob of the lamp housing. So we recommend that you use the U-CLA optional extension knob.

1. Attach the lamp housing ① on the filter wheel ②.
- ⊙ This is because the clamping screw of the filter wheel cannot be tightened easily after the filter wheel has been installed on the microscope.
2. Tighten the filter wheel clamping screw ③ using an Allen screwdriver.
3. Attach the filter wheel on the reflected light illuminator.
4. Connect the connection cable ④ of filter wheel to one of connectors FW1, 2 and 3 on the BX-UCB.

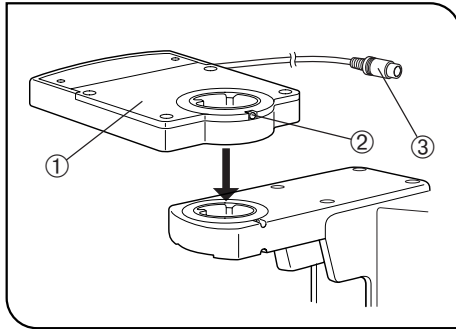


Fig. 6

U-FWO Filter Wheel (Fig. 6)

- ⊙ The U-FWO can be mounted on a BX, BX2, AX, IX or IX2 series microscope.
 - ⊙ When a 25 mm filter is used, light amount becomes insufficient in the peripheral area of field in super widefield observation (FN26.5). This is barely noticeable with FN22.
 - ⊙ When a 40X or higher magnification objective is used with the combination of the IX/IX2 series and IX-ATU, insufficient light amount may be noticeable with FN22 in the peripheral area.
1. Fit the circular dovetail on the bottom of the filter wheel ① in the mount on the observation tube mount, then tighten the observation tube clamping screw using an Allen screwdriver.
 - ⊙ If the filter wheel interferes with the projected part of the motor, rotate the filter wheel as required.
 2. Attach the observation tube on the filter wheel and tighten the clamping screw ② using the Allen screwdriver.
 3. Connect the connection cable ③ of filter wheel to one of connectors FW1, 2 and 3 on the BX-UCB.

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