THORLABS

MDFM-MF2

Olympus AX, BX, and IX Microscopy Filter Cube

Assembly Manual

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Part 1. Safety

All statements regarding safety of operation and technical data in this instruction manual will only apply when the unit is operated correctly. Handle all optics with care. Gloves are recommended for optic installations. Take care when tightening optics, as overtightening optics may cause the optic to break or shatter.

Part 2. Assembly Instructions

Step 1

Carefully unpack the Olympus MDFM-MF2 Filter Cube assembly. Take note where the emitter and exciter sides of the cube are (see Figure 1).

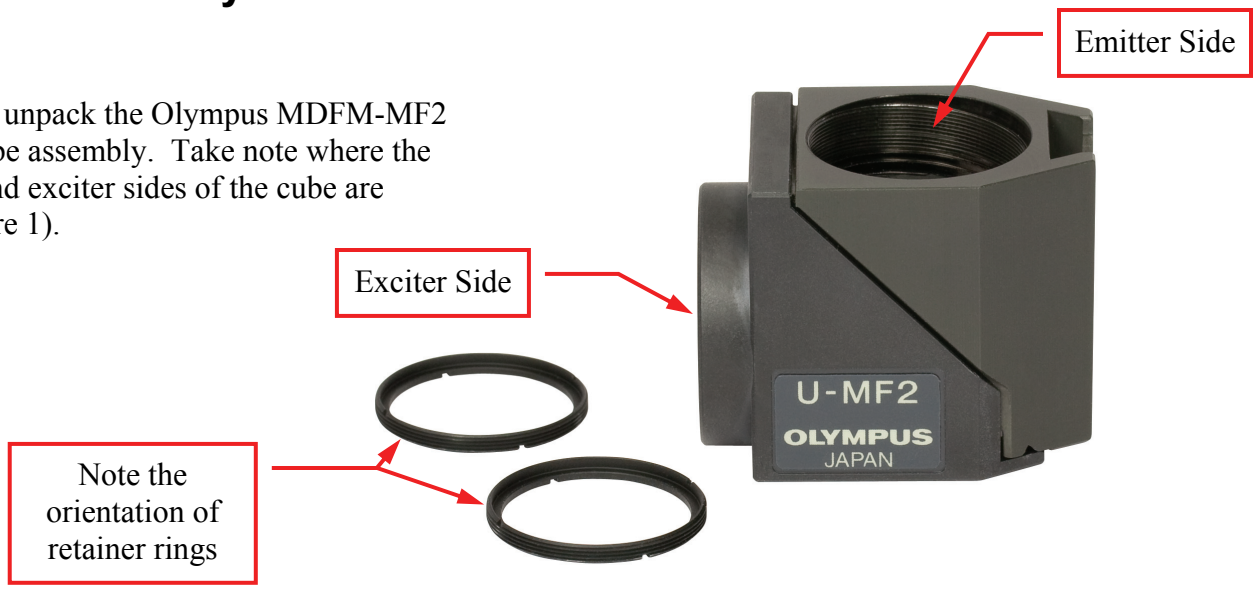


Figure 1. MDFM-MF2 Filter Cube Assembly

Note the orientation of the retainer rings. The flat side of both retaining rings should always face away from the cube. The side of the retaining ring with the mounting lip should face inwards towards the filter and dichroic mirror.

Step 2

Remove the two screws holding the filter cube together. Carefully separate the two filter cube halves.

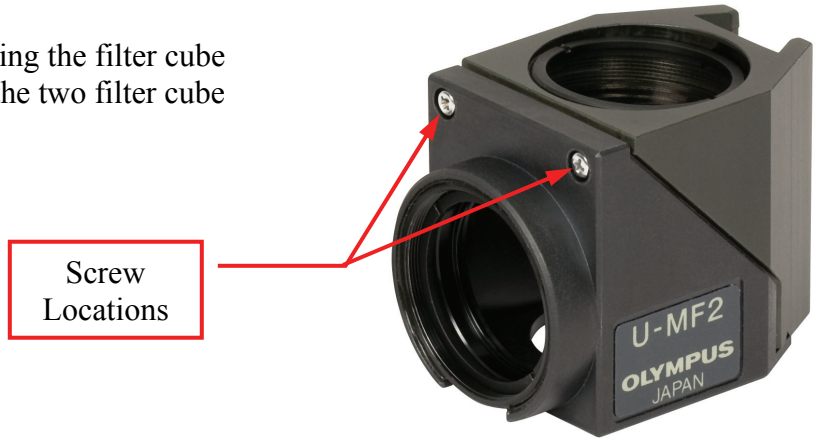


Figure 2. Disassembling the filter cube

Step 3

Remove the emitter side of the filter cube and orient so the emitter port is facing down as shown in Figure 3. Loosen the two screws holding the dichroic mirror retainer clip. Do not remove the screws.

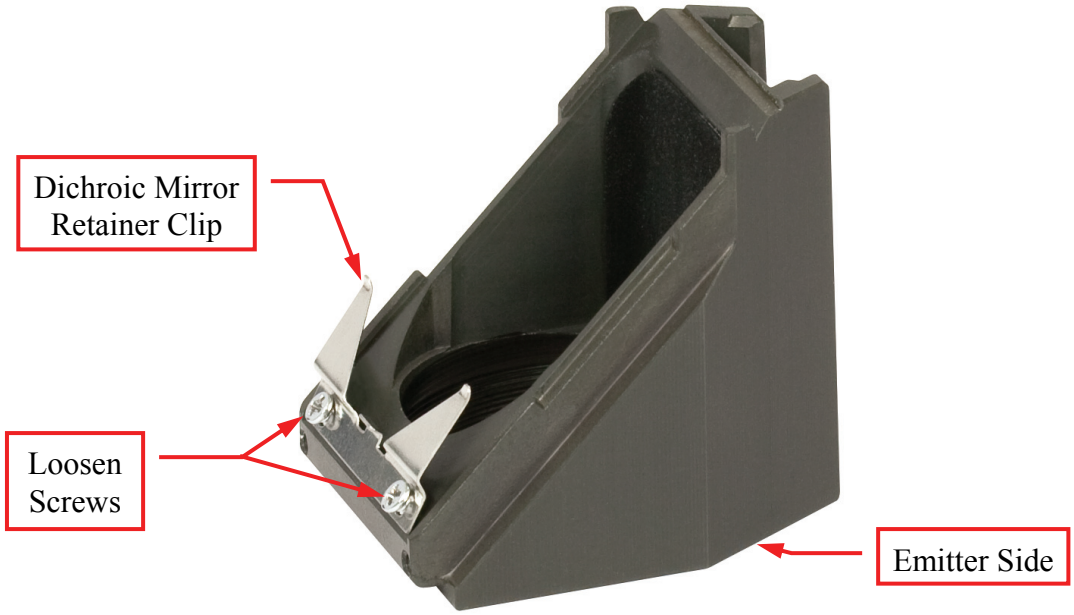


Figure 3. Loosening the dichroic mirror retainer clip

Step 4

The MDFM-MF2 Filter Cube holds a standard set of Thorlabs MDF Series Dichroic Mirror, Emission, and Excitation Filter Set, sold separately. The MDF-CY3.5 Filter set is shown in Figure 4.

Figure 4. Dichroic mirror set

The emission and excitation filters can be easily differentiated by the thickness of the filter mount rings: emission (3.5 mm) and excitation (5.0 mm). Note that the dichroic mirror has a coated and an uncoated side (see Figure 5).

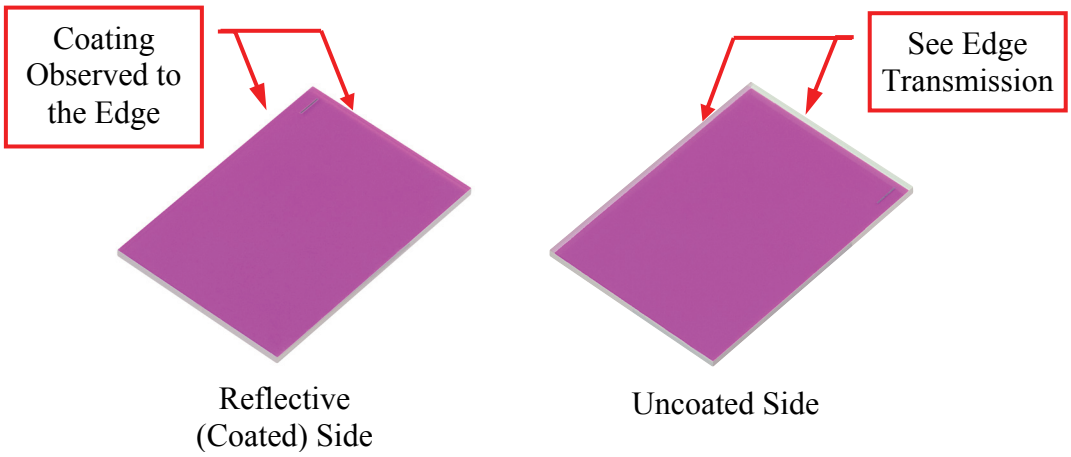


Figure 5. Dichroic mirror orientation

When held at an angle, the coated side will appear uniform in reflection all the way to the edge. The uncoated side, when held at the same angle, will not have a uniform reflection near the edge. There will be a band of transmission that appears through the uncoated substrate. It is important to determine the coated and uncoated sides of the dichroic mirror as there is only one orientation that will work with the Filter Cube.

Step 5

Place the dichroic mirror under the retaining clip, making sure the mirror seats properly in the recess. The reflective surface of the dichroic mirror should face **UP**.

Figure 6. The dichroic mirror mounted in the emitter half cube

Slowly tighten the retaining clip screws until snug. Caution: Do not over tighten the retaining clip screws as this may damage the dichroic mirror.

Step 8

Reassemble the filter cube by placing the half of the assembly with the mounted dichroic mirror into the empty half. Align the two halves using the two assembly screw holes. Slowly tighten the assembly screws, alternating between them, until snug. Caution: Do not over tighten the assembly screws, as doing so may strip the threads or screw heads. At this point the dichroic mirror should be facing the exciter side of the filter cube (see Figure 7).

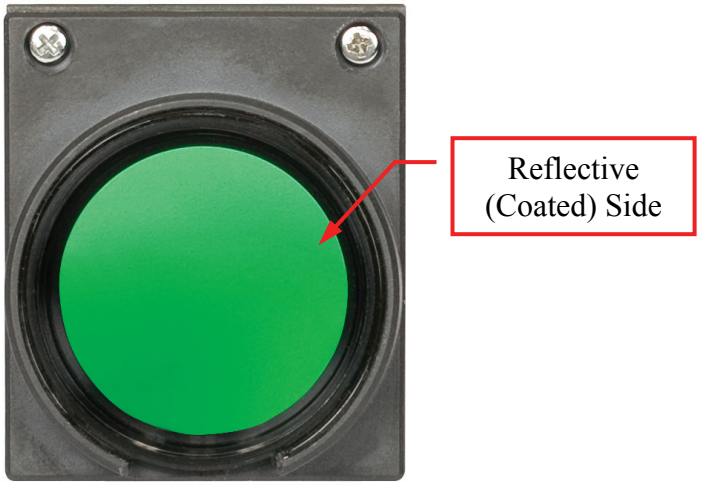


Figure 7. Looking into the exciter side of the filter cube

Step 9

Orient the filter cube so the emitter side is facing up. Place the emission filter into the mount with the filter arrow facing up, away from the mount. Carefully thread the retainer ring (lip side down) onto the cube.

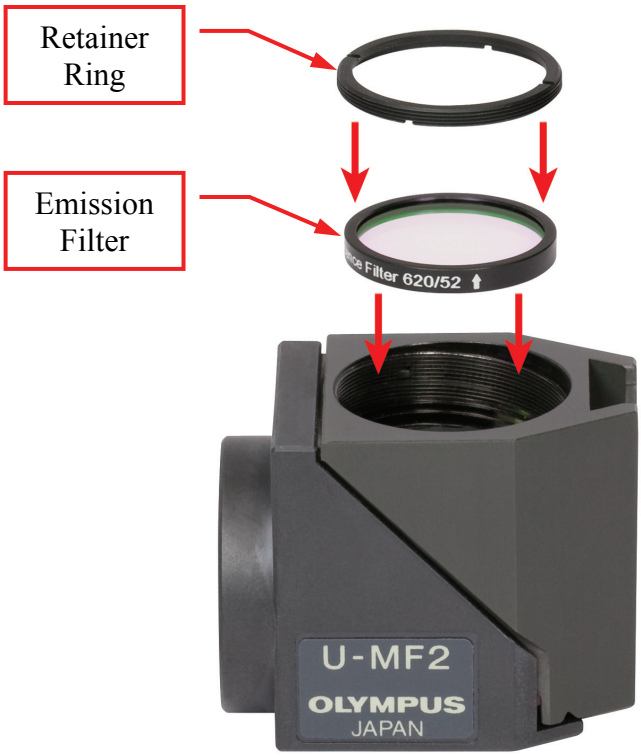


Figure 8. Installing the emission filter

Note: The threads are not parallel with the face of the cube. Take extra care to make sure the retainer ring is threaded properly onto the cube. The ring should rotate smoothly and easily when threaded properly. Tighten the retainer ring using the supplied spanner wrench, or Thorlabs Spanner, until snug.

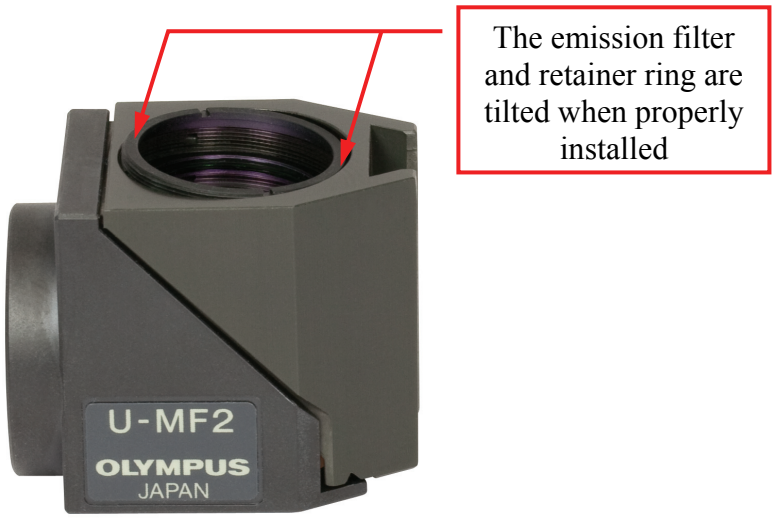


Figure 9. Note the orientation of the emission filter and retainer ring

Step 10

Place the excitation filter into the filter cube with the arrow facing down into the mount. Carefully thread the retainer ring (lip side facing inwards) onto the cube.

Take extra care to make sure the retainer ring is threaded properly onto the cube. The ring should rotate smoothly and easily when threaded properly.

Tighten the retainer ring using the supplied spanner wrench.

Figure 10. Installing the excitation filter

Step 11

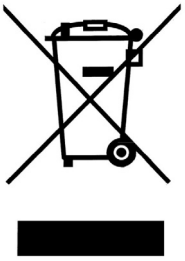
The completed MDFM-MF2 Olympus Filter Cube is shown in Figure 11.

Figure 11. The MDFM-MF2 Filter Cube with emission filter, excitation filter, and dichroic mirror installed

Part 3. Regulatory

As required by the WEEE (Waste Electrical and Electronic Equipment Directive) of the European Community and the corresponding national laws, Thorlabs offers all end users in the EC the possibility to return "end of life" units without incurring disposal charges.

- This offer is valid for Thorlabs electrical and electronic equipment:
- Sold after August 13, 2005
- Marked correspondingly with the crossed out "wheelie bin" logo (see right)
- Sold to a company or institute within the EC
- Currently owned by a company or institute within the EC



Wheelie Bin Logo

- Still complete, not disassembled and not contaminated

As the WEEE directive applies to self-contained operational electrical and electronic products, this end of life take back service does not refer to other Thorlabs products, such as:

- Pure OEM products, that means assemblies to be built into a unit by the user (e. g. OEM laser driver cards)
- Components
- Mechanics and optics
- Left over parts of units disassembled by the user (PCB's, housings etc.).

If you wish to return a Thorlabs unit for waste recovery, please contact Thorlabs or your nearest dealer for further information.

3.1. Waste Treatment is Your Own Responsibility

If you do not return an "end of life" unit to Thorlabs, you must hand it to a company specialized in waste recovery. Do not dispose of the unit in a litter bin or at a public waste disposal site.

3.2. Ecological Background

It is well known that WEEE pollutes the environment by releasing toxic products during decomposition. The aim of the European RoHS directive is to reduce the content of toxic substances in electronic products in the future.

The intent of the WEEE directive is to enforce the recycling of WEEE. A controlled recycling of end of life products will thereby avoid negative impacts on the environment.

Part 4. Thorlabs Worldwide Contacts

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