THORLABS

TLV-U-MF2
Filter Cube Assembly for Olympus AX, BX2, and IX2 Microscopes

User Guide



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Chapter 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.

Chapter 2 Assembly Instructions

2.1. Step 1

Carefully unpack the TLV-U-MF2 Filter Cube assembly. Use a Thorlabs SM1 Spanner Wrench (such as Item # SPW602) to remove the retaining rings from the excitation and emission ports (see Figure 1).



Figure 1 Filter Cube Assembly with Retaining Rings

Note the orientation of the retaining rings. The side of the retaining ring with the spanner wrench slots should always face away from the cube.

2.2. Step 2

Remove the two screws holding the filter cube together (see Figure 1; Phillips head, M2 threaded). Carefully separate the two filter cube halves. Take note of the excitation/emission filter halves (see Figure 2).



Figure 2 Disassembling the Filter Cube

2.3. Step 3

The TLV-U-MF2 Filter Cube holds a standard set of Dichroic Mirror (up to 25.2 x 36.0 x 1.1 mm), Emission (Ø25 mm), and Excitation Filters (Ø25 mm), sold separately. Thorlabs' MDF-GFP Filter Set is shown in Figure 3.

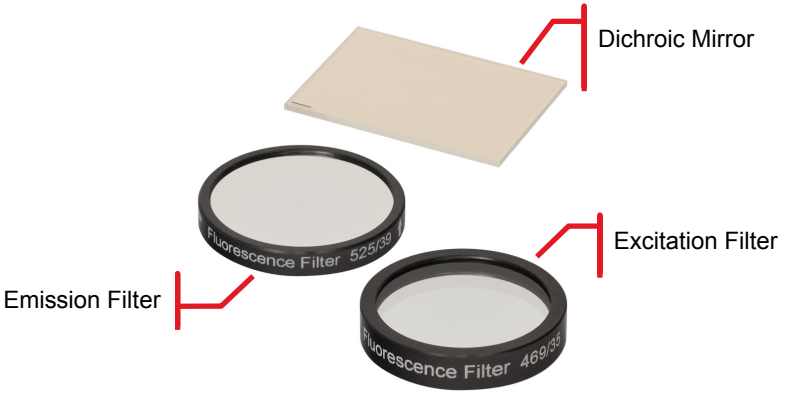


Figure 3 Dichroic Filter Set for Fluorescence Imaging

Thorlabs' 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 beamsplitter coating on one side (see Figure 4).

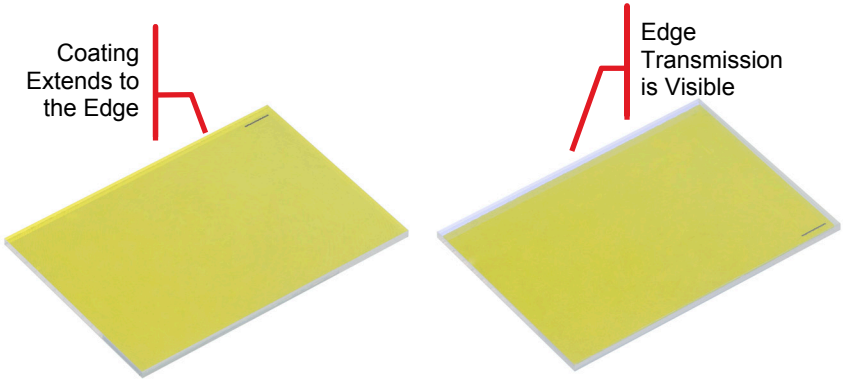


Figure 4 Dichroic Filter Orientation

When held at an angle, the beamsplitter-coated side will appear uniform in reflection all the way to the edge. The opposite 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 substrate. It is important to determine the beamsplitter-coated side of the dichroic mirror as there is only one orientation that will work with the filter cube.

2.4. Step 4

Place the dichroic mirror in the excitation filter half's slot. The surface of the dichroic mirror with the beamsplitter coating must face **DOWN**.

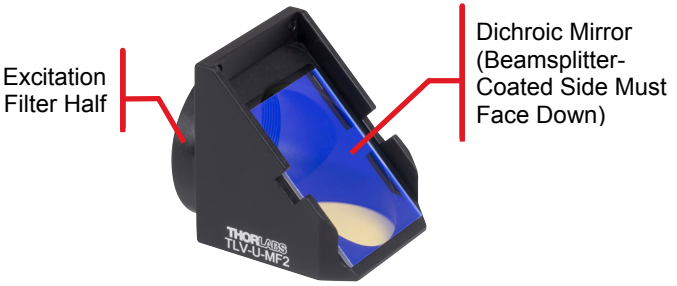


Figure 5 The dichroic mirror is inserted into the excitation filter half.

2.5. Step 5

Align the emission filter half with the notch on the excitation filter half as shown in Figure 6. Alternate tightening between the two assembly screws taking care not to allow movement of the dichroic mirror.

Check the orientation of the dichroic mirror by looking into the excitation and emission sides of the filter cube. The reflective (beamsplitter-coated) side should be visible through the excitation side of the cube.



Figure 6 Reassembling the Filter Cube and Checking Dichroic Mirror Orientation

2.6. Step 6

Orient the filter cube so the emission side is facing up. Insert the emission filter in the filter cube with the arrow facing away from the cube as shown in Figure 7. Thread an SM1 retaining ring above the filter to secure it.

Note: The emission filter will not be parallel with the face of the cube.

Orient the filter cube so the excitation side is facing up. Insert the excitation filter with the arrow pointing towards the cube and dichroic mirror, as shown in Figure 7. Thread the other SM1 retaining ring into the excitation port to secure the filter.



Figure 7 Installing the Excitation and Emission Filters

The assembled TLV-U-MF2 Filter Cube is shown in Figure 8.

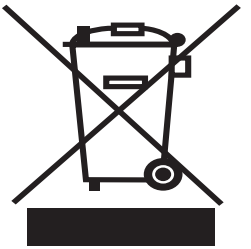


Figure 8 Filter Cube with Filters Installed

Chapter 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
- Still complete, not disassembled and not contaminated



Wheelie Bin Logo

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.

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.

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.

Chapter 4 Thorlabs Worldwide Contacts

For technical support or sales inquiries, please visit us at www.thorlabs.com/contact for our most up-to-date contact information.



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