



*Imaging Products Division*



**Instruction Manual  
Custom Emission Filter Assemblies for the FX**

Manual 400-0146  
REVISION A  
04/21/99

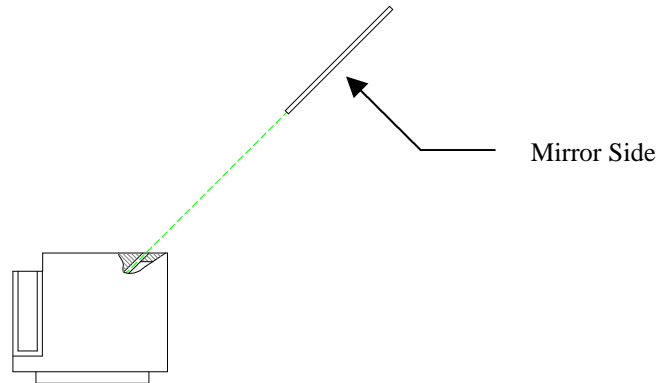
### **Building Up a Custom Dichroic Filter**

#### **Precautionary Notes:**

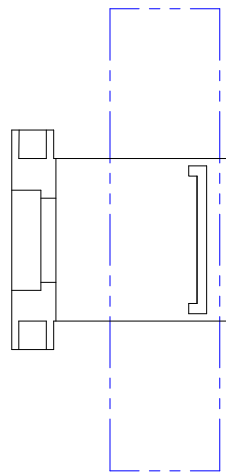
1. The appropriate dimensions for any dichroic filter are 1.45" x 1.00" x .039" Thk (36.8mm x 25.4mm x 1mm)
2. Before handling filters, make sure you are wearing powder-free gloves to avoid any fingerprints or dust on the filter surface.
3. All dichroic filter assemblies must be installed in **Filter Wheel B ONLY**.

#### **Assembly Process:**

**Step 1** - Slide the dichroic filter into the 45° Slot in Cube as shown below. Note the orientation of the mirrored side of the filter. In many cases the supplier of the dichroic will mark the mirror side with a white dot or an arrow pointing to the mirror side.



**Step 2** - Cut a piece of black optical tape (included) into a 3" (75mm) length. Cover the entire slot opening with this piece of tape to seal off any light leaks.



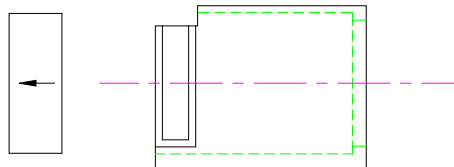
### **Building Up a Custom Long Pass/Band Pass/Short Pass Filter**

#### **Precautionary Notes:**

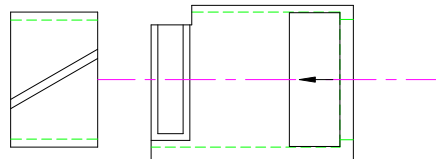
1. The filter cube is designed to accept 1" (25.4mm) diameter filters up to .6" (15mm) thick.
2. Before handling filters, make sure you are wearing powder-free gloves to avoid any fingerprints or dust on the filter surface.
3. All long pass/band pass/short pass filter assemblies must be installed in **Filter Wheel A ONLY**.

#### **Assembly Process:**

**Step 1** - Slide the filter into the opening in the cube as shown below. Orientation of the filter is critical and you must default to the manufacturer's installation instructions. In many cases the supplier of the filter will mark side with an arrow indicating the light direction. The arrow always points in the direction of the light path as shown below (towards the PMT detector).



**Step 2** - With the filter installed all the way down inside the filter module, compress and slide the slip ring into the filter module to secure the filter in place.



## **Filter Manufacturer Contact List**

### **Omega Optical**

3 Grove Street  
P.O. Box 573  
Brattleford, VT 05301  
Ph: (802) 254-2690  
Fax: (802) 254-3937  
[www.omegafilters.com](http://www.omegafilters.com)

### **Schott Glass Technologies**

400 York Avenue  
Duryea, PA 18642-2036  
Ph: (570) 457-7485  
Fax: (570) 457-6960  
[www.schottglasstech.com](http://www.schottglasstech.com)

### **Chroma Technology Corp.**

72 Cotton Mill Hill, Unit A-9  
Brattleboro, VT 05301  
Ph: (802) 257-1800  
Fax: (802) 257-9400

### **Optosigma**

2001 Deere Avenue  
Santa Ana, CA 92705  
Ph: (714) 851-5881  
Fax: (714) 851-5058  
[www.optosigma.com](http://www.optosigma.com)

### **Barr Associates**

2 Liberty Way  
P.O. Box 557  
Westford, MA 01886-3690  
Ph: (508) 692-7513  
Fax: (508) 692-7443

## *Standard Locations for FX Filters*

### *Scope*

This document is provided as quick guide for users on the standard locations for FX filters. When a user has finished using a custom filter and wishes to return the FX to the predetermined production orientation this guide will assist them.

### *How to use this document*

Table A is written from the standpoint of the user access doors to the laser and detector modules. On all production units, the filter wheels are marked with numbers signifying positions in the wheels. Each of the filters is marked with their respective catalog numbers.

Table A shows four locations for Filter Wheel A and Filter Wheel B (Detector Module) and six slots for the Filter Wheel C (Laser Module).

In each of the cells, the format is as follows:

Catalog #  (Color as viewed by the naked eye through the filter towards a white light)
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For the two filters placed in Filter C the "NDx" designates that a Neutral Density filter is placed in front of the glass substrate to attenuate the power to acceptable scan power.

Table B contains all of the Catalog numbers for the filters with various ND values.

Table C contains all of the Catalog numbers for the filters with various ND values.

Table A - Filter Positions in FX

Slot	Filter A	Filter B	Filter C
1	Blank Cube 170-7887	170-7870 (blue)	Selected from table below. Catalog P/N's (170-7881 thru 170-7886) (orange/red)
2	170-7873 (green)	170-7871 (purple)	Selected from Table C below. Catalog P/N's (170-7875 thru 170-7880) (blue)
3	170-7874 (red)	170-7872 (orange)	Empty
4	Blank Cube 170-7887	Blank Cube 170-7887	Empty
5			Empty
6			Empty

Table B - Catalog #'s for Filter C, slot 1

Filter Catalog P/N	NDx Value
170-7881	0.1
170-7882	0.2
170-7883	0.3
170-7884	0.4
170-7885	0.5
170-7886	0.6

Table C - Catalog #'s for Filter C, slot 2

Filter Catalog P/N	NDx Value
170-7875	0.1
170-7876	0.2
170-7877	0.3
170-7878	0.4
170-7879	0.5
170-7880	0.6