

Fast Filter Accessory Instructions

The instrument is classified Pollution degree 2 and Installation Category I.

Safety information

Before using this accessory, you must read the Safety Practices and Hazards section in your Cary Eclipse User's Guide.

A link to the Safety section can also be found on the main page of the Cary Eclipse Help.

If the equipment is used in a manner not specified by the manufacturer, your safety may be at risk.

Introduction

The Fast Filter accessory for the Agilent Cary Eclipse Fluorescence spectrophotometer provides a solution for ratiometric applications. Such measurements require rapid sequential measurement of fluorescence intensity at two (or four) different excitation or emission wavelengths. The wavelengths selected are determined by filters, which are fitted into the accessory.

The accessory consists of four metal arms extending from a central wheel. Each arm is labeled as 1, 2, 3 or 4 by holes etched into the wheel, just below the filter position (Figure 3).

Either two or four bandpass filters may be mounted on the filter wheel (one filter per arm). If only two filters are used, they must be mounted in opposite positions, either positions 1 and 3 or positions 2 and 4. The solid black discs must be mounted in the two remaining filter positions. This is to ensure the filter wheel is balanced.

Unpacking notes

Your accessory is packed in foam-lined cardboard boxes. Check that you have received all of the items in the accessory kit (Figure 1) by referring to the packing list included with the shipment.

Follow the filter manufacturer's recommendation with regard to which side of the filter should face the light source. This is particularly important for excitation filters.



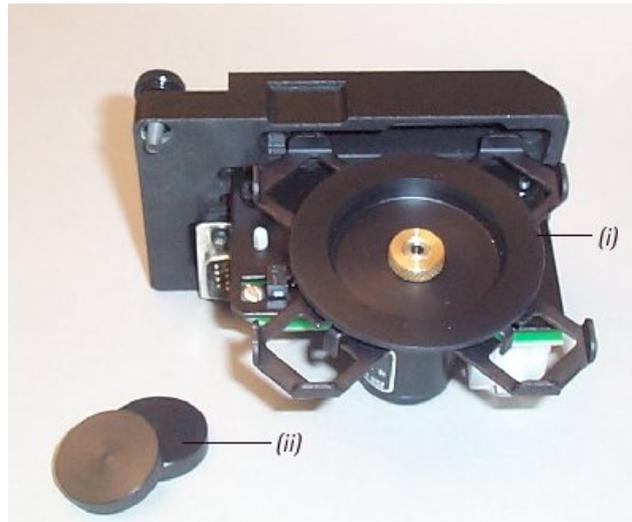


Figure 1. i) The Fast Filter accessory; ii) 2 x black solid discs

Installation

Installation of the Fast Filter accessory can be divided into three stages:

- Installing the filters and the black discs in the accessory
- Installing the accessory in the instrument
- Configuring the accessory using the software

Installing the filters in the accessory

- 1 Using your fingers, carefully unscrew the knurled nut (Figure 2 (i)) in the center of the black plastic filter locking wheel (Figure 2 (ii)) and remove the locking wheel from the accessory.

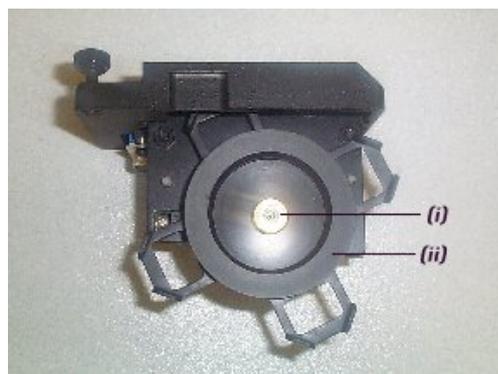


Figure 2. i) Knurled nut; ii) Filter locking wheel

- 2 Filters now need to be placed in the accessory. There are four filter positions, each labeled 1 to 4 by holes etched into the arms of the filter holder (Figure 3).

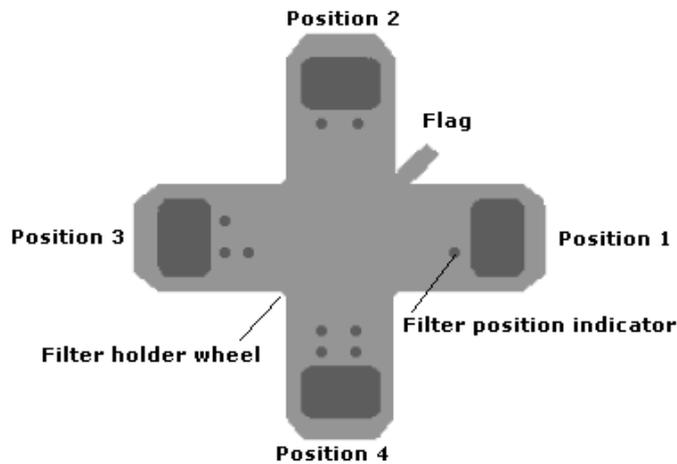


Figure 3. Filter positioning

All four filter positions **MUST** be used in the accessory to ensure the filter wheel is balanced. If two filters are to be used, they must be placed in opposite positions in the filter holder. If you place a filter in position 1, the second filter must be placed in position 3 and the black discs must be placed in positions 2 and 4. If you place filters in positions 2 or 4, the black discs must be placed in positions 1 and 3.

Lay the accessory horizontally, and carefully place the filters and solid black discs into the arms of the wheel, ensuring they are pressed against the arm ends (Figure 4).

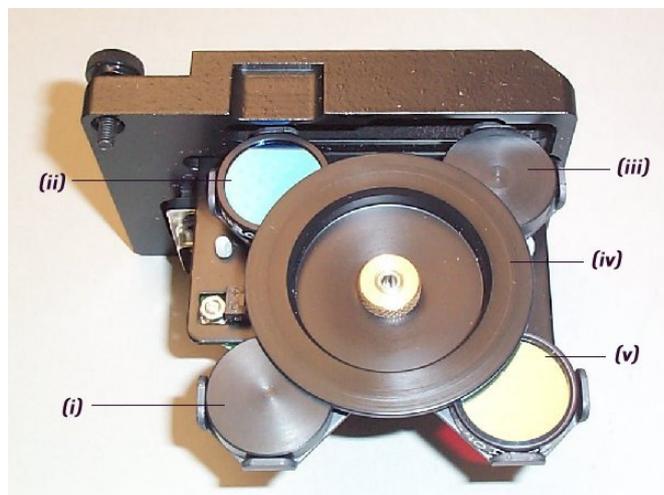


Figure 4. (i) & (iii) Correctly fitted black discs; (ii) & (v) Correctly fitted filters; (iv) Replaced Filter locking wheel

Follow the filter manufacturer's recommendation with regard to which side of the filter should face the light source. This is particularly important for excitation filters. Replace the plastic locking wheel removed in Step 1, ensuring the bandpass filters and black discs remain positioned at the arm ends (Figure 4).

Replace the knurled nut and rotate in a clockwise direction until finger-tight. **DO NOT** over-tighten.

NOTE

Ensure you record the position in which each filter is mounted. The software requires this information at a later stage.

| Filter center wavelength (nm) | | |
|-------------------------------|------------|----------|
| Position | Excitation | Emission |
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |

Use the above table to keep a record of your installed filters and black discs.

Installing the accessory in the instrument

- 1 Turn off the instrument and remove any accessories from the sample compartment.
- 2 Prepare to remove the outer cover of the instrument by flipping up the four black plastic clasps located on each side of the instrument. Two of these are labeled (iv) and (v) in Figure 5.

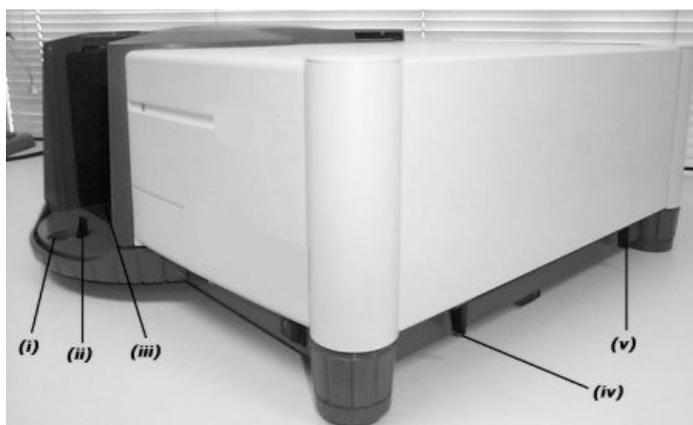


Figure 5. (i) Circular cover plate (removed); (ii) Front clasp; (iii) Sample compartment front door (removed); (iv) Right side plastic clasps. The remaining two clasps are located in the same position as (iv) and (v) on the opposite side of the instrument.

- 3 Remove the sample compartment front door and, using your thumb, lift the circular cover plate in the base of the instrument to expose a plastic clasp (Figure 5(ii)). Flip up the clasp.
- 4 Carefully remove the instrument outer cover by lifting it upwards away from the instrument base.
- 5 This step varies slightly depending on whether the accessory is to be installed into the excitation or the emission fast filter positions.

With the instrument cover removed, the black metal inner cover is now visible. You will be able to see two plates each secured by two black screws to the top of the instrument. These represent the positions for either excitation or emission measurement. The black plate labeled (i) in Figure 6 covers the chamber in which the accessory needs to be fitted to operate as an emission filter. The second black plate, closest to the front of the instrument, covers the chamber in which the accessory needs to be fitted to operate as an excitation fast filter. Remove the appropriate black plate by unscrewing the two black screws.

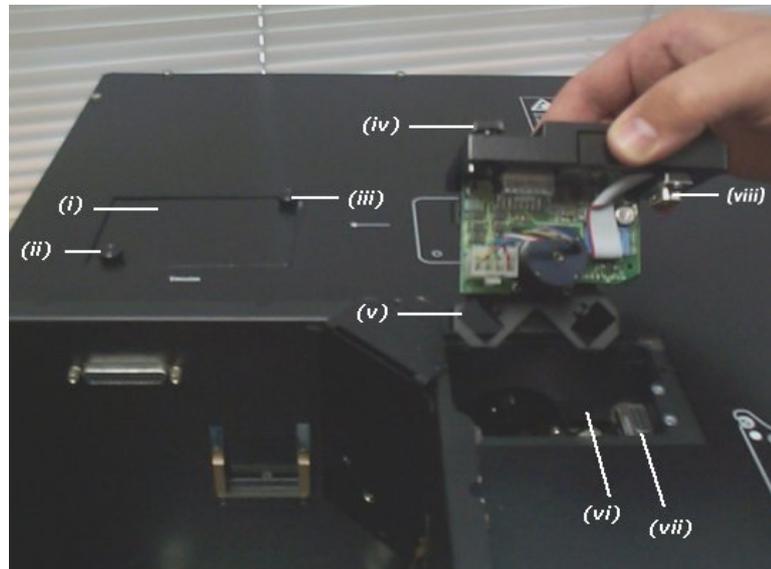


Figure 6. (i) Plate covering accessory chamber (emission); (ii) & (iii) Black screws; (iv) Black thumb screw; (v) Filter wheel orientation; (vi) Accessory chamber (excitation) with cover removed; (vii) & (viii) Alignment of the male and female D-plugs

Installing the Fast Filter accessory in the Excitation position

To install the accessory in the Excitation position:

- a** Hold the accessory above the excitation chamber, located to the right of the sample compartment.
- b** Orientate the accessory so the male D-plug located on the accessory is aligned with the female D-plug (Figure 6 (vii)) inside the excitation chamber.
- c** Orientate the filter wheel as shown in Figure 6 (v) so the arms of the filter wheel form a diagonal cross.
- d** Carefully lower the accessory into the excitation chamber, raising the edge nearest the male D-plug on a 30° angle so that the opposite edge of the accessory touches the excitation chamber first (see Figure 7). Once the edge is positioned, lower the male D-plug so that it is sitting on top of the female D-plug in the excitation chamber.

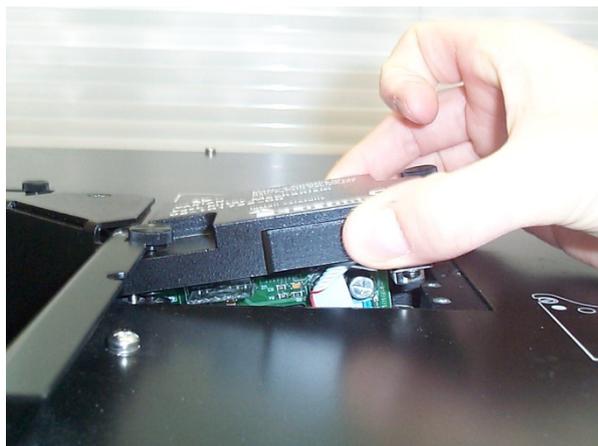


Figure 7. The edge nearest the male D-plug is raised at a 30° angle with the opposite edge touching the excitation chamber

- e** To secure the Fast Filter accessory, gently push down on top of the accessory base directly above the two D-plugs. Once the plugs mate, tighten the black thumbscrews. The accessory is now fitted in the excitation position.

Installing the Fast Filter accessory in the Emission position

- a** To install the accessory in the Emission position, hold the accessory above the emission chamber, (Figure 6 (i)). Orientate the accessory so the male D-plug located on the accessory is aligned with the female D-plug (Figure 6 (vii)) inside the emission chamber.
 - b** Orientate the filter wheel as shown in Figure 6 (v) so the arms of the filter wheel form a diagonal cross.
 - c** Carefully lower both edges of the accessory into the emission chamber ensuring the male and female D-plugs are aligned. Once the accessory is sitting in the emission chamber, gently push down on top of the accessory base plate directly above the two D-plugs. Once the plugs mate, tighten the black thumbscrews. The accessory is now fitted in the emission position.
- 6** Secure the Fast Filter accessory in the chamber by tightening the two black thumbscrews (Figure 6 (iv)). The Fast Filter accessory is now correctly fitted and you can replace the instrument cover.
 - 7** Carefully replace the instrument cover and flip down the four black plastic clamps to secure, and the front black plastic clamp to secure them. Replace the circular cover. (This is the reverse of Steps 4, 3 and 2 in order).
 - 8** Install the accessory you would like to use with your Cary Eclipse, for example the single cell holder or multicell holder.
 - 9** If required, replace the sample compartment front door and close the sample compartment lid.

NOTE

If the Fast Filter accessory is removed, it is important that the black cover plate be replaced and secured using the two black screws.

Configuring the accessory using the software

The Fast Filter accessory is designed to be operated by the Ratio Application provided in the Cary Eclipse Bio software.

- 1 Open the Ratio Application.
- 2 Turn on the instrument.
- 3 From the main Ratio window, click the **Setup** button to display the Setup dialog box. From the **Collection Type** drop-down menu on the **Cary** page of the Setup dialog box, select either **Excitation Fast Filter** or **Emission Fast Filter**, depending on whether you have installed the Fast Filter accessory in the excitation or emission positions respectively (refer to Figure 6).

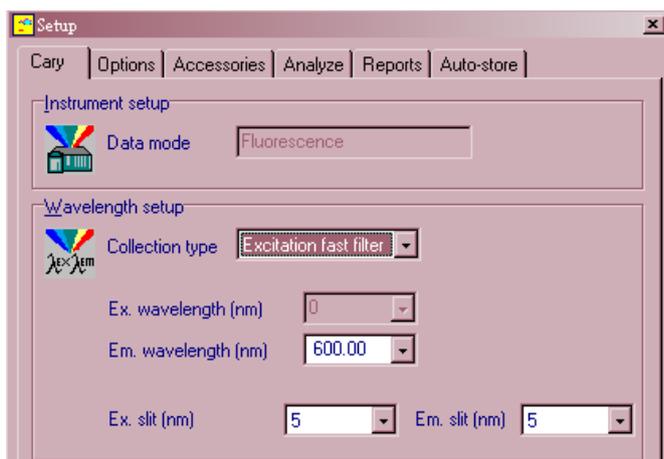


Figure 8. Instructing the instrument to drive the Fast Filter accessory fitted to the excitation monochromator chamber

On the **Accessories** page of the **Setup** dialog box, select the **Fast Filter** option to display Fast Filter page (Figure 7). In this example the software will automatically calculate the result of Filter 3/Filter 1 and the result of Filter 4/Filter 2.

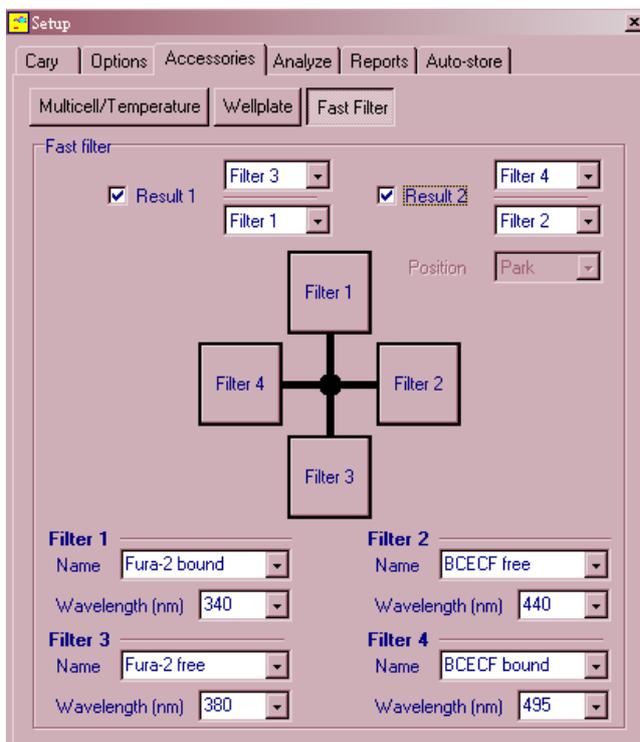


Figure 9. Instructing the Ratio software to drive the Fast Filter accessory

Select the **Result 1** check box if you inserted bandpass filters into Positions 1 and 3 of the filter wheel, or **Result 2** for positions 2 and 4. Alternatively, select both check boxes if you inserted filters in all 4 positions of the filter wheel.

- 4 You are now ready to use the Ratio application to gather data. For more information about the Ratio or other Cary Eclipse software applications, click the 'Help' button.

NOTE

The text fields in the lower half of the page are only for graph labeling purposes and have no effect on the ratio values calculated.

Removal

If you need to remove the Fast Filter accessory from the instrument to add or change filters, grasp the accessory base on the right end of the long edge and gently lift. Once the D-plug is disconnected, the accessory may be carefully removed.

If the accessory is not being re-inserted, be sure to replace the black metal cover over the fast filter chamber, and tighten the locking screws.

Specifications

For environmental and power supply requirements, refer to your instrument operating instructions. This product is suitable for indoor use only.

Weights

Packed: 877.5 g (1.93 lb)
Unpacked: 377.5 g (0.83 lb)

Dimensions (W x D x H)

Packed: 220 x 220 x 220 mm (8.66 x 8.66 x 8.66 in)
Unpacked: 110 x 220 x 220 mm (4.33 x 8.66 x 8.66 in)

Maintenance and cleaning

Keep your accessory safely packed in its original box when not in use. Avoid unnecessary handling. For maintenance and cleaning, refer to the manufacturer's instructions.

This information is subject to change without notice.



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