Fiber Optic Upgrade Kit

Safety information

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

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

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Introduction

The Fiber Optic Upgrade Kit converts the Fiber Optic Coupler into a Dip Probe Coupler. This gives the Agilent Cary Eclipse the capacity to examine the fluorescent properties of liquid samples at locations remote from the instrument, via an optical light guide.

Unpacking notes

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

Installation

1. Remove the front panel of the Agilent Cary Eclipse instrument by sliding it upwards.
2. If there is an accessory in the sample compartment you will need to remove it. To remove the Fiber Optic Coupler accessory:
   - **a** If there is a probe installed, disconnect it from the coupler accessory and the 25 pin port. Loosen the thumbscrew on the sample compartment lid, swing open the small cover and carefully remove the probe out through the hole.
   - **b** Remove the lid by pushing it all the way back. You will feel some resistance, but keep pushing to remove it completely.
   - **c** Loosen the locking nut and the top screw of the stabilizing screw (Figure 1 *xi* & *Insert*). Open the fastening lever (Figure 1 *xii*) on the accessory by moving it from right to left. Using the handle (Figure 1 *vii*), lift the accessory out of the sample compartment.

CAUTION When handling the Fiber Optic Coupler, avoid placing fingers or thumbs in the coupler entrance, as they will touch the flat mirror. Always lift using the handle Figure 1 vii).

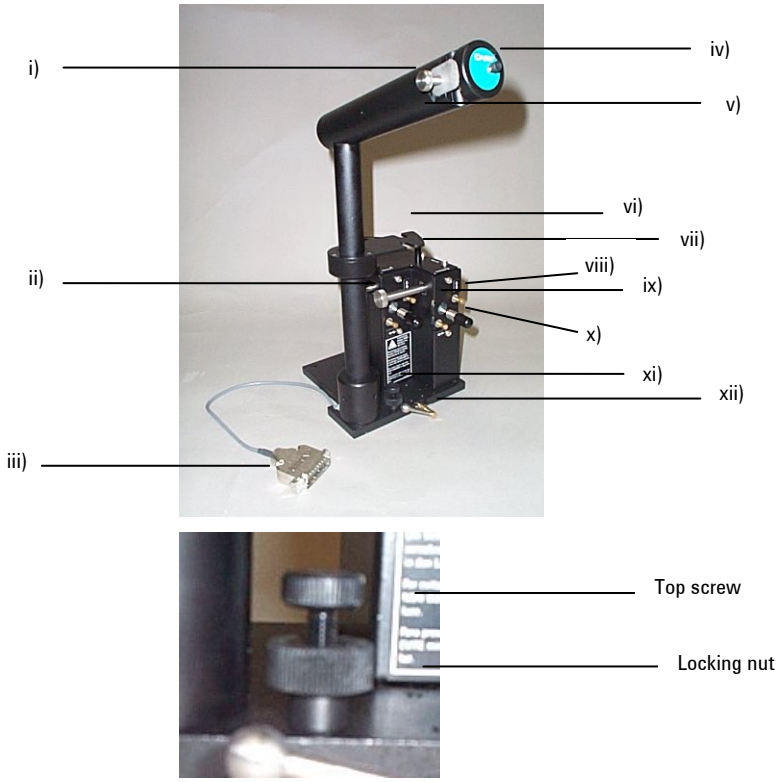

Figure 1. Fiber Optic Dip Probe Coupler accessory.

i) Clamping screw	vii) Handle
ii) Holding screw (one of two)	viii) Aligning adjuster (one of four)
iii) Cable plug	ix) Key hole (one of two)
iv) Remote read button	x) Focus control (one of two). DO NOT ADJUST
v) Coupler arm	xi) Stabilizing screw
vi) Lead guide (one of two)	xii) Fastening lever

Insert: Close up of stabilizing screw

3 Attach the vertical stand to the accessory base. To do this:

a Lay the accessory on its side and hold the dip probe stand in place so that:

- The three screw holes are aligned with those on the accessory base.
- The remote read button (Figure 1 *iv*) is facing away from the accessory.
- The grey cord is sitting in the slot on the accessory base.

b Place the three screws (provided) into the screw holes and tighten with the supplied screwdriver.

4 Ensure that the fastening lever (Figure 1 *xii*) is in the open position (i.e., to the left). Rest the accessory at the front of the sample compartment in order to allow access to the D-shaped 25 pin port at the left side of the rear sample compartment wall. Connect the cable plug (Figure 1 *iii*) to the port.

5 Align the two locating holes on the base of the accessory with the locating pins on the floor at the rear of the sample compartment. Move the fastening lever from left to right to lock the accessory into position.

6 Adjust the stabilizing screw on the accessory base (Figure 1 *xi*), to stabilize the accessory. To do this, use your fingers to screw the top screw (Figure 1 *Insert*) clockwise until there is no side-to-side movement, then tighten the locking nut to lock the accessory into this position.

7 To connect the short Dip Probe (see Figure 2) to the coupler accessory:

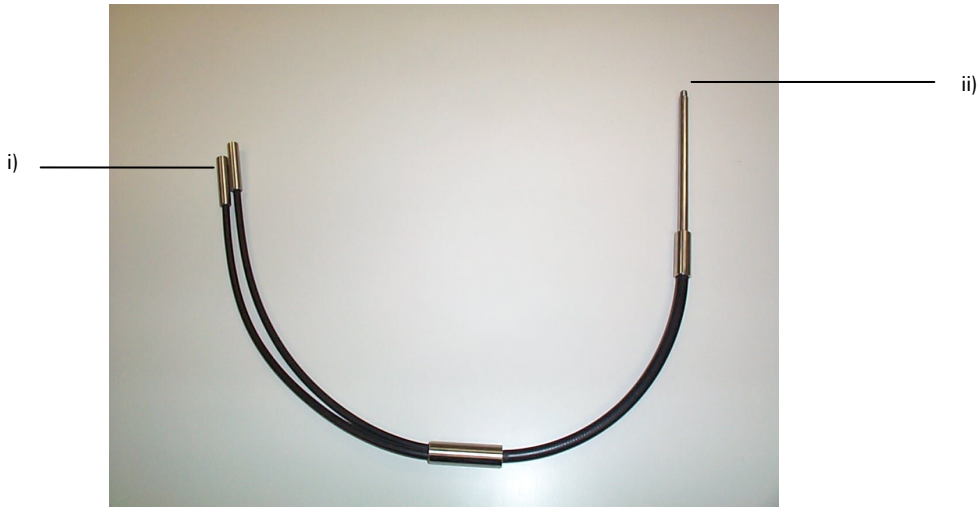

Figure 2. Fiber Optic Dip Probe. i) Connector ends. ii) End to which probe tip is attached.

a Carefully remove the protective plastic plugs from the two connector ends (Figure 2 *i*) of the dip probe.

b Loosen the holding screws (Figure 1 *v*) on the Dip Probe accessory by turning them counterclockwise.

c While supporting the end of the probe to which the tip will be attached (see Figure 2 *ii*), carefully insert the two connector ends (Figure 2 *i*) of the probe into the two key holes (Figure 1 *ix*) in the coupler accessory. Ensure that the metal pins are pointing directly upwards. (It does not matter which connector end is inserted into which slot.) Push the ends as far as they will go so that the face on the end of each connector presses up against a metal stop.

d Tighten the holding screws until finger-tight. Check that the probe connectors are securely held in place.

CAUTION Fasteners should be finger-tight only. Do not over-tighten or you may damage the connectors.

Screw the required probe tip onto the end of the dip probe (see Figures 2 *ii* and 3). You can use either a 10 mm tip or a 20 mm tip. They are both available as a kit.

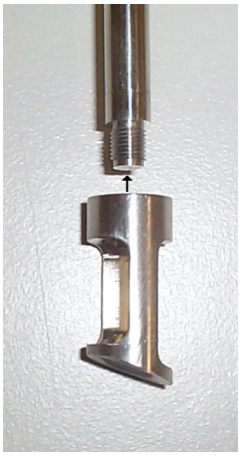

Figure 3. Connection of a liquid probe tip to the Fiber Optic Probe.

e Clamp the probe into the vertical stand attached to the base of the accessory. To do this:

i. Loosen the clamping screw on the side of the coupler arm (Figure 1 *i*).

ii. With the probe tip pointing downwards, position the probe behind the metal clamp, then tighten the clamping screw.

f Place the two branches of the lead neatly behind the lead guides (Figure 1 *vi*).

8 Loosen the screw at the back of the coupler arm and rotate the arm 90° to the left. This allows you to then slide the front panel vertically onto the sample compartment.

9 Attach the special sample compartment lid for use with the accessory onto the top of the instrument, by sliding it on from the back. Position the coupler arm to suit your requirements.

WARNING **Danger to eyes, avoid looking at the light beam.**

To ensure that the fiber optic system will operate at maximum performance, it is necessary to optimize the efficiency with which light passes through the coupling device before experimentation begins.

NOTE Alignment needs to be done only once—there is no need to align the coupler each time the accessory is removed and re-installed.

To align the accessory:

1 Turn the Agilent Cary Eclipse instrument power on using the switch on the front right side of the instrument.

2 Start the Align application by clicking **Start** in the Windows Taskbar, then **Programs/Cary Eclipse/Align**. The spectrophotometer will begin taking continuous readings.

3 Any fluorescent material can be used for alignment. We recommend using the supplied white alignment card.

Remove the fiber optic probe from the vertical stand and, if you have not already done so, unscrew the liquid probe tip. Hold the end of the probe against the card/fluorescent material at an angle of roughly 45° to avoid scattered excitation light. Use a clamp to hold the probe in this position.

4 In the Align application, click the **Cary** tab. If using the white card, set the parameters as outlined in Figure 4 then click **Apply**. If using a different fluorescent material, set appropriate excitation and emission wavelengths.

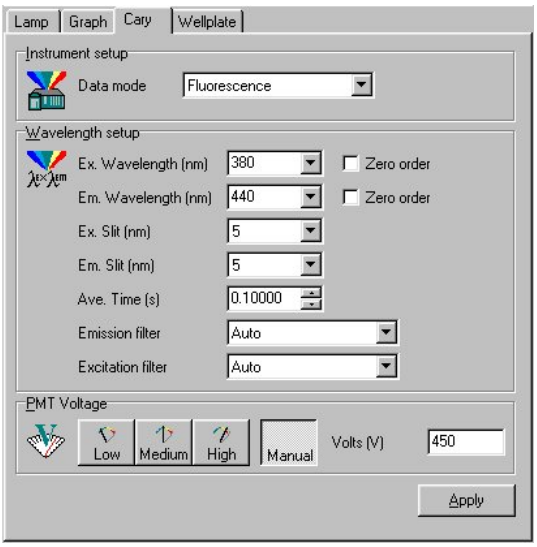

Figure 4. Align application Cary page settings for alignment using white card.

5 To maximize the "Int" (intensity) reading in the top left corner of the screen (hence the amount of light reaching the detector), you may need to turn the gold adjusters (Figure 1 *viii*). To do this:

a Slide back the sample compartment lid enough to remove the front panel. (you may need to rotate the coupler arm to do so, see Step 8 of installation).

b Using the supplied 5.5 mm spin-tight, slowly turn the vertical excitation adjuster to the left. If the intensity reading starts to decrease, turn the adjuster to the right.

c Keep turning the adjuster in the direction that causes the intensity value to increase. When you reach a point where the value starts to decrease, you have just passed the point of maximum intensity. Turn the adjuster very slightly back the other way to find this maximum value.

TIP: You may find it easier to view the intensity reading graphically. To do this, click the **Graph** tab. Zoom in on the graph for a more precise view of the intensity.

d Repeat steps (b) and (c) for the horizontal excitation adjuster to maximize the signal. Then, repeat steps (b) through (d) until turning either adjuster in any direction results in a decrease in intensity.

CAUTION Do not alter any other screws on the accessory, especially the two focus controls (Figure 1 x).

e Now that you have optimized the light entering the excitation fibers, you will need to maximize the fluorescence emission reaching the detector. To do this, repeat steps (b) to (d) for the emission vertical and horizontal gold adjusters.

The instrument is over-range if the reading reaches 1000 a.u. If this occurs, it will be necessary to reduce the photo-multiplier tube (PMT) voltage on the 'Cary' tab in order to continue the alignment procedure. As a guide, a 10% change in PMT voltage causes a two-fold change in the intensity measured.

6 Once you have maximized the intensity using the adjusters, the coupler is satisfactorily aligned. Replace the front panel, close the lid and close the Align application. Clamp the probe in the vertical stand, as you did in Step 7 (f) of Installation, and re-attach the liquid probe tip (Figures 2 iii and 3).

Operation

To use the Dip Probe Coupler:

1 Start the application you will be using and set the instrument parameters according to your analytical requirements.

2 Dip the probe into the sample and press the Remote Read button (Figure 1 *iv*) to start the data collection.

Specifications

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

Connections

25-pin D-range connector on accessory cable.

Weight

Packed	3.75 kg (8.27 lb)
Unpacked	2.25 kg (4.96 lb)

Dimensions

Packed (includes lid)	330 x 260 x 470 mm (12.9 x 10.2 x 18.5 in)
Unpacked	400 x 250 x 20 mm (15.7 x 9.8 x 1.9 in)
Lid unpacked	350 x 210 x 30 mm (13.8 x 8.3 x 1.2 in)

Maintenance and cleaning

The outside of the Dip Probe Coupler should be kept clean by wiping with a damp cloth (dampened with water or alcohol). Do not use abrasive cleaning agents.

Rinse the dip probe tips and end of the probe with water after use and dry before storing. Avoid bending the cable sharply as this can damage the cable.

Technical assistance

For technical assistance regarding this accessory, please e-mail: contact_us@agilent.com

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