Lambda 365 Fiber Coupling Module and Fiber Optic Probe Installation Instructions

This instruction sheet describes the installation of this accessory which is used with the Lambda 365 Spectrophotometer.

NOTE: Read these instructions before you install this accessory.

Contacting PerkinElmer

Supplies, replacement parts, and accessories can be ordered directly from PerkinElmer, using the part numbers.

See our website:

http://perkinelmer.com

PerkinElmer's catalog service offers a full selection of high-quality supplies.

To place an order for supplies and many replacement parts, request a free catalog, or ask for information:

If you are located within the U.S., call toll free 1-800-762-4002, 8 a.m. to 8 p.m. EST. Your order will be shipped promptly, usually within 24 hours.

If you are located outside of the U.S., call your local PerkinElmer sales or service office.

Features

- Durable stainless steel design
- Dip Probe for measuring liquid samples without using a cell



Figure 1 Lambda 365 Fiber Coupling Module [Part No: N4101013] with Fiber Optic Probe [Part No: N4101048]



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Produced in the USA.

Dimensions and Specifications





Figure 2 Fiber Optic Probe

Figure 3 Fiber Coupling Module

Physical (Characteristic	Specification	
	A: Fiber Type	Fused Silica	
	B: Fiber Size	600 μm	
Fiber Optic Probe (Part No: N4101048)	C: Connector	SMA 905	
	D: Probe Diameter	Ø 0.19″ OD	
	E: Path Length	10 mm	
	Spectral Range	200 nm ~ 1100 nm	
	Overall Length (OAL)	100 ~ 120 cm	
	Breakout Length (BOL)	18 ~ 23cm	
	Probe Length (PL)	15.2 cm	
Fiber Coupling Module	Dimension (mm)	132(W) x 138(H) x 280(D)	
(Part No: N4101013)	Weight (Kg)	0.92	

Configuration of Fiber Coupling Module



Figure 4 Fiber Coupling Module

- Used to fix a front plate for Fiber Coupling Module
- Spare screws (2ea) are enveloped with the accessory

Figure 5 Phillips round head screw with washer (M4 *12L)

Figure 6 1.5 mm wrench

Installation

- 1. Prepare the Lambda 365 Spectrophotometer to install this accessory.
- 2. Prepare the fiber coupling module and fiber optic probe.
- 3. Remove the two M3x10L cross recessed flat head screws with washer using a Phillips screw driver.



Figure 7 Separate the optical fiber probe clamp

4. Insert connectors of the fiber optic probe trough the optical fiber probe clamp.



Figure 8 Inserting the fiber optic probe

5. Fix the two M3x10L cross recessed flat head screws.



Figure 9 Fixing two screws

6. Connect the connectors of the fiber optic prober to the Collimator holder and the SMA port.



Figure 10 Connecting the fiber optic probe

7. Make sure that the fiber coupling module and fiber optic probe are connected correctly as below.



Figure 11 Fiber coupling module with fiber optic probe

8. Remove the two Phillips round head screws with washer (M4*12L) to disassemble the existing cell holder and base plate.



Figure 12 Location of the Phillips round head screws with washer (M4*12L)

9. Pull out the cell holder and base plate by hand.



Figure 13 Pulling out the cell holder and base plate

10. Insert the Fiber Coupling Module with fiber optic probe into the sample compartment.



Figure 14 Inserting the Fiber coupling module with fiber optic probe

11. Tighten the Fiber Coupling Module in the sample compartment with the screws.



Figure 15 Screw location

- 12. Dip the fiber optic probe into the liquid sample.
- 13. Align the optimum position by moving Fiber Optic Probe itself. The alignment procedure will be described in the section of **Alignment of Fiber Optic Probe**.

Measurement

System Self Test

NOTE: The Fiber coupling module with fiber optic probe should be installed after System Self Test is finished. **NOTE:** Start the System Self Test after warming up the system for at least 20 minutes.

- 1. Install a single cell holder and base plate.
- 2. Double-click on the **UV Express** folder and select experiment mode for starting.
- 3. The following window will appear. Make sure that the sample compartment is closed firmly and select OK.

UV Express	X
1	Please confirm there is empty in the cell holders and close the sample compartment cover firmly before the initialization.
	ОК

4. Click **OK** after finishing the System Self Test.



Scan Mode

- 1. Install the fiber coupling module with fiber optic probe, referring to the "Installation" procedures on page 3.
- 2. Select **New** to open a new window. Select **Experiment Type** and select **OK**.

New			×
Title	Untitled-1		<u>O</u> K <u>C</u> ancel
Experiment Type	Scan Setup	•	

3. Click **Method** and set up parameters.

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- 4. Setup the experiment parameters as follows:
 - a. Accessory: Select the Fiber Optic Probe.

Method
Experiment Lamp Internal Reference Scan Setur Accessory
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Fiber Optic Probe Connection Check
Method Setup
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🕨 Method					— × —
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🗖 0%T / Blocked Beam Ba	aseline	Scan Rate (nm/min)	600		
	Save as Default	Apply	ОК	Cancel	

c. Lamp: Single Front is automatically selected. If not, select Single Front and setup other experiment parameters.

Setup				
	Beam Type	Single Front	Ŧ	
	Lamp	UV+VIS	•	
	Light Change Wavelength (nm)	400		

- d. Setup the Internal Reference, Scan Setup. For more information, see the *Lambda 365 UV Express Software Users Guide*, the section on *Scan Setup*.
- 5. Select **Apply** and **OK** after setting up the parameters.
- 6. Dip the probe in the blank solution and select the **Blank** icon.
- **NOTE:** Before measurement, make sure that that bubble does not exist at the mirror side of the probe.
- **NOTE:** When the sample is measured, any light from outside of the bottled should be blocked as it affects the measurement result.
 - 7. Clean the probe and dip it in the sample solution. Select the **Sample** icon.
 - 8. Input the sample name and select **OK**.



9. The spectrum and result will be displayed. Save or print the results as desired.

Quantification Mode

- 1. Install the fiber coupling module with fiber optic probe, referring to the "Installation" procedures on page 3.
- 2. Select New to open a new window. Select Experiment Type and select OK.

			01/
Title	Untitled-1		<u></u> K
Comment			Cancel
Experiment Type	Quantification	-	

3. Select **Method** and set up the parameters.

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- 4. Setup the experiment parameters as follows:
 - a. Accessory: Select the Fiber Optic Probe.

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Accessory Type
Method Setup
Save as Default Apply OK Cancel

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c. Lamp: Single Front is automatically selected. If not, select Single Front and setup other experiment parameters.

🔊 Method	•
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Setup	
Beam Type	Single Front
Lamp	UV+VIS 💌
Light Change Wavelength (nm)	400

- d. Setup the Quantification parameters. For more information, see the *Lambda 365 UV Express Software Users Guide*, the section on *Quantification*.
- 5. Select **Apply** and **OK** after set-up of parameters.
- 6. Dip the probe in the blank solution and select the **Blank** icon. Absorbance of selected wavelength is changed about 0 Abs.
- **NOTE:** Before measurement, make sure that that bubble does not exist at the mirror side of the probe.
- **NOTE:** When sample is measured, any light from outside of the bottled should be blocked as it affects the measurement result.
 - 7. Clean the probe and Dip the probe in the Standard solution. Select the **Standard** icon. Measure standard solutions in order and the calibration curve will be created.
 - 8. Clean the probe and dip the probe in the sample solution. Select the **Sample** icon.
 - 9. Input sample name and select OK.

🔊 Input Sample Name	put Sample Name		
Sample Name : Sample 1	ОК	Cancel	

10. The spectrum and result will be displayed. Save or print results as desired.

Scanning Quantification Mode

- 1. Install the fiber coupling module with fiber optic probe, referring to the "Installation" procedures on page 3.
- 2. Select New to open a new window. Select Experiment Type and select OK.

New			
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Comment			Cancel
Experiment Type	Scanning Quantification	-	

3. Select **Method** and set up the parameters.

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- 4. Setup the experiment parameters as follows:
 - a. Accessory: Select the Fiber Optic Probe.

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X End (nm) 190	Data Interval (nm)	1.0 💌	
Y Unit Absorba	nce 💌 Scan Rate (nm/min)	600	
🗖 0%T / Blocked Beam	Baseline		
	Save as Default Apply	OK Cancel	

c. Lamp: Single Front is automatically selected. If not, select Single Front and setup other experiment parameters.

Setup	amp Internal Reference Scan Set	up Quantificatio	on Accessory
oetup	Beam Type	Single Front	Ţ
	Lamp	UV+VIS	•
	Light Change Wavelength (nm)	400	

- d. Setup the Quantification parameters. For more information see the *Lambda 365 UV Express Software Users Guide*, the section on *Scanning Quantification*.
- 5. Select **Apply** and **OK** after set-up of parameters.
- 6. Dip the probe in the blank solution and select the **Blank** icon. Absorbance of selected wavelength is changed about 0 Abs.
- **NOTE:** Before measurement, make sure that that bubble does not exist at the mirror side of the probe.
- **NOTE:** When sample is measured, any light from outside of the bottled should be blocked as it affects the measurement result.
 - 7. Clean the probe and Dip the probe in the Standard solution. Select the **Standard** icon. Measure standard solutions in order and the calibration curve will be created.
 - 8. Clean the probe and dip the probe in the sample solution. Select the **Sample** icon.
 - 9. Input sample name and select **OK**.
 - 10. The spectrum and result will be displayed. Save or print results as desired.

Kinetics Mode

- 1. Install the fiber coupling module with fiber optic probe, referring to the "Installation" procedures on page 3.
- 2. Select New to open a new window. Select Experiment Type and select OK.

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Title	Untitled-1		
Comment			Cancel
Experiment Type	Time Based Kinetics	-	

3. Select **Method** and set up parameters.

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- 4. Setup the experiment parameters as follows:
 - a. Accessory: Select the Fiber Optic Probe.

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Accessory Type Fiber Optic Probe Connection Check Method Setup	
Save as Default Apply OK Cancel	

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c. Lamp: Single Front is automatically selected. If not, select Single Front and setup other experiment parameters.

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Experiment Lamp Kinetics Accessory	
Setup	
Beam Type	Single Front
Lamp	UV+VIS 💌
Light Change Wavelength (nm)	400

- d. Setup the Kinetics parameters. For more information see the Lambda 365 UV Express Software Users Guide, the section *Kinetics Mode*.
- 5. Select **Apply** and **OK** after set-up of parameters.
- 6. Dip the probe in the blank solution and select the **Blank** icon. Absorbance of selected wavelength is changed about 0 Abs.
- **NOTE:** Before measurement, make sure that that bubble does not exist at the mirror side of the probe.
- **NOTE:** When sample is measured, any light from outside of the bottled should be blocked as it affects the measurement result.
 - 7. Clean the probe and dip the probe in the sample solution. Select the **Sample** icon.
 - 8. Input sample name and select OK.

🖄 Input Sample Na	ime		×
Sample Name :	Sample 1	ОК	Cancel

9. The spectrum and result will be displayed. Save or print results as desired.

Scanning Kinetics Mode

- 1. Install the fiber coupling module with fiber optic probe, referring to the "Installation" procedures on page 3.
- 2. Select **New** to open a new window. Select **Experiment Type** and select **OK**.

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Experiment Type	Scanning Kinetics	•	

3. Select Method and set up parameters.

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- 4. Setup the experiment parameters as follows:
 - a. Accessory: Select the Fiber Optic Probe.

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Fiber Optic Probe	
Method Setup	
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Setup				
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X End (nm)	190	Data Interval (nm)	1.0	•
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c. Lamp: Single Front is automatically selected. If not, select Single Front and setup other experiment parameters.

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Lamp	UV+VIS	•	
Light Change Wavelength (nm)	400		
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- d. Setup the Kinetics parameters. For more information see the *Lambda 365 UV Express Software Users Guide*, the section *Scanning Kinetics Mode*.
- 5. Select Apply and OK after set-up of parameters.
- 6. Dip the probe in the blank solution and select the **Blank** icon. Absorbance of selected wavelength is changed about 0 Abs.
- **NOTE:** Before measurement, make sure that that bubble does not exist at the mirror side of the probe.
- **NOTE:** When sample is measured, any light from outside of the bottled should be blocked as it affects the measurement result.
 - 7. Clean the probe and dip it in the sample solution. Select the **Sample** icon.
 - 8. Input sample name and select OK.

🖄 Input Sample Na	ame		X]
Sample Name :	Sample	ОК	Cancel	

9. The spectrum and result will be displayed. Save or print results as desired.

Wavelength Program Mode

- 1. Install the fiber coupling module with fiber optic probe, referring to the "Installation" procedures on page 3.
- 2. Select New to open a new window. Select Experiment Type and select OK.

New			E X
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Experiment Type	Wavelength Program	-	

3. Select **Method** and set up parameters.

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- 4. Setup the experiment parameters as follows:
 - a. Accessory: Select the Fiber Optic Probe.

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Experiment Lamp	Accessory		1
Accessory Type	Connection Check]	
Method Setup			
	Save as Default Apply	ок	Cancel

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Save as Default Apply OK Cancel

c. Lamp: Single Front is automatically selected. If not, select Single Front and setup other experiment parameters.

Single Front
UV+VIS 💌
400

- d. Setup the parameters. See the *Lambda 365 UV Express Software Users Guide*, the section *Wavelength Program Mode*.
- 5. Select **Apply** and **OK** after setting up the parameters.
- 6. Dip the probe in the blank solution and select the **Blank** icon. Absorbance of selected wavelength is changed about 0 Abs.
- **NOTE:** Before measurement, make sure that that bubble does not exist at the mirror side of the probe.
- **NOTE:** When sample is measured, any light from outside of the bottled should be blocked as it affects the measurement result.
 - 7. Clean the probe and dip the probe in the sample solution. Select the **Sample** icon.
 - 8. Input sample name and select **OK**.



9. The spectrum and result will be displayed. Save or print results as desired.

Alignment of Fiber Optic Probe

- **NOTE:** When the fiber optic probe is assembled to the fiber coupling module for the first time, or if the alignment is inaccurate, i.e., the intensity is too low or saturated; you need to perform the intensity alignment as described in the following procedures.
 - 1. Execute the Scan mode of UV Express software.
 - 2. Setup the experiment parameters as follows:
 - a. Accessory: Select the Fiber Optic Probe.

🕒 Method 🧮
Experiment Lamp Internal Reference Scan Setur Accessory
Accessory Type Fiber Optic Probe Connection Check Method Setup Connection Check
Save as Default Apply OK Cancel

b. Experiment: SBW is set 2.0 nm automatically. Setup other experiment parameters as follows.

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X End (nm) 190 Spectra No. 1	ra No. 1	Spectra No.	X End (nm) 190	X End (nm)
Y Unit Energy Data Interval (nm) 1.0	nterval (nm)	Data Interval (nm)	Y Unit Energy -	Y Unit
O%T / Blocked Beam Baseline Scan Rate (nm/min) 600	Rate (nm/min) 600	Scan Rate (nm/min)	🔲 0%T / Blocked Beam Baseline	🗆 0%T / B

c. Lamp: Single Front is automatically selected. If not, select Single Front and setup other experiment parameters.

Internal Reference Scan Set	up Accessory	
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amp	UV+VIS	•
ight Change Wavelength (nm)	400	
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- 3. Select **Apply** and **OK** after setting up the parameters.
- 4. Dip the probe in the blank solution and select the **Blank** icon.

5. If the baseline measurement has abnormal results, the Fiber Optic Probe has to be aligned.

Ex) Intensity is too low.



6. Loosen the three M3 setscrews on the collimator holder using a 1.5 mm wrench.



7. Move slightly back and forth the fiber optic probe connector to the light source side for the alignment, and then tighten the screw on the collimator holder.



8. After finishing the alignment, measure baseline again to check suitability. If it is fine, measure the sample. (Maximum intensity should be over 2000 cnt.) If not, repeat the alignment procedure 1 to 7 above.



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