

# Flame Direct Attach UV-VIS Integrated Sampling System Installation and Operation Instructions

## Description



The Flame Integrated Sampling System (FLAME-DA-CUV-UV-VIS) is a snap-on, direct-attach 1 cm cuvette holder and UV/VIS light source (200-1100 nm) combination created specifically for the Flame spectrometer models. The deuterium and tungsten-halogen tungsten light source receives control instructions via the accessory connector on the spectrometer.

The FLAME-DA-CUV-UV-VIS is a perfect general purpose tool for absorbance and transmission spectroscopy. It includes a filter slit on the illumination side designed for 12.5 mm (1/2") optical filters (but may accept other sizes), useful for reducing stray light and improving your results. The tungsten-halogen source can be dimmed to balance the spectral response and improve the dynamic range of results in the UV. To use your spectrometer with a fluorescence probe, simply disconnect the probe and attach the Flame Integrated Sampling System and within minutes you have a miniature spectrophotometer.



The FLAME-DA-CUV-UV-VIS also contains a built-in cooling fan. Therefore, due to the increased power requirements of the light source, the sampling system requires a separate 5-volt power supply (included with the system).

## Compliance

	<p>The light beam emitted from the FLAME-DA-CUV-UV-VIS contains ultraviolet radiation and can cause eye damage. Always use safety goggles when working with this product.</p>
	<p><b>DO NOT OPEN THE FLAME-DA-CUV-UV-VIS. The FLAME-DA-CUV-UV-VIS has an internal high voltage power source. Dangerous voltage levels are present, and there are no user-serviceable parts.</b></p>

## Parts Included

The FLAME-DA-CUV-UV-VIS Integrated Sampling System ships with the following components:

- FLAME-DA-CUV-UV-VIS miniature deuterium/tungsten-halogen light source
- 5-volt DC power supply
- SMA Collimator for spectrometer SMA coupling

## Installing the Sampling System

Do not attempt to connect the FLAME-DA-CUV-UV-VIS to the spectrometer without following the installation instructions in this section. Furthermore, ensure that the spectrometer operating software (OceanView) is installed on your computer and that the spectrometer is obtaining data before connecting the FLAME-DA-CUV-UV-VIS.

## WARNINGS

- **The light beam emitted from the FLAME-DA-CUV-UV-VIS contains ultraviolet radiation and can cause eye damage. Always use safety goggles when working with this product.**
  - **DO NOT OPEN THE FLAME-DA-CUV-UV-VIS. The FLAME-DA-CUV-UV-VIS has an internal high voltage power source. Dangerous voltage levels are present, and there are no user-serviceable parts.**
  - **The FLAME-DA-CUV-UV-VIS has an internal high voltage power source. Thus, you should not adjust the unit while it is connected to a power source.**
  - **Contact Ocean Optics for bulb replacement (FLAME-DA-CUV-UV-VIS-B).**
  - **Do not use this instrument for any clinical or diagnostic measurements.**
  - **Dropping the unit can cause permanent damage. Handle with care.**
- 

## Adjusting the Cuvette

### ► Procedure

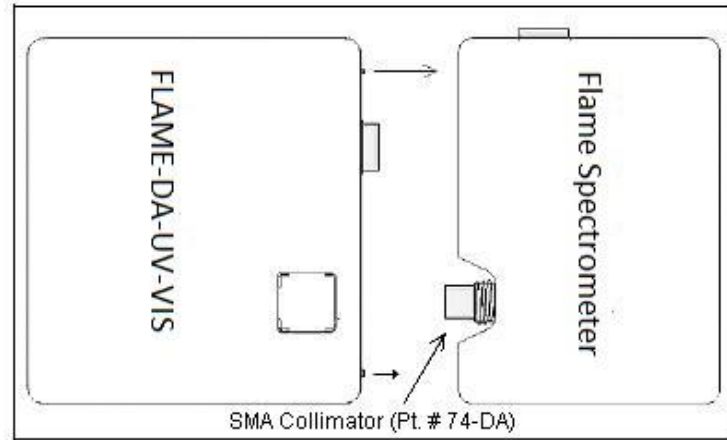
1. Locate the ball plunger screws (accessed on the front face of the unit and through the hole opposite the power jack on the side of the unit).
2. Use a small (0.100") flathead screwdriver to loosen the ball plunger screws until the end is visible in the holder.
3. Insert a cuvette into the cuvette holder.
4. Tighten the ball plunger screws until the cuvette is stationary in the cuvette holder. Do not over-tighten.
5. Remove the cuvette from the cuvette holder.

## Connecting to the Spectrometer

### ► Procedure

1. Remove the power from the spectrometer by disconnecting it from the PC or detaching the USB cable.

2. Attach the SMA Collimator to the SMA 905 connector of the spectrometer. This should be connected so that the outer threaded half of the collimator is pointing towards the spectrometer. The FLAME-DA-CUV-UV-VIS will not connect correctly if this piece is not properly oriented (see diagram below).



---

### Note

A 74-series lens is included and attaches to the spectrometer for normal functionality. If the 74-series lens is reversed and attached to the UV-VIS accessory instead, it can be used as a standalone light source with a SMA connection.

---

3. Screw the FLAME-DA-CUV-UV-VIS to the front of the spectrometer using a standard flathead screwdriver. The connection screws are accessed from the front of the FLAME-DA-CUV-UV-VIS (the white lined holes on the front of the unit).
4. Connect the power supply to a standard power outlet, and then connect the 5-volt power connector to the FLAME-DA-CUV-UV-VIS.
5. Connect the USB cable to the spectrometer and to the computer.
6. Flip the power switch to on to activate the unit; the fan should begin to spin.



## Aligning with the Spectrometer

If your FLAME-DA-CUV-UV-VIS was preassembled with a spectrometer, it has been specifically aligned with that particular spectrometer. If your FLAME-DA-CUV-UV-VIS was not preassembled with a spectrometer, ensure that you align the sampling system with the spectrometer.

### ► Procedure

1. Consult the calibration sheet that accompanied your spectrometer to verify the spectrometer configuration, which is also stored in your spectrometer's memory.
2. Install the SMA Collimator (see Step 2 of the [Connecting to the Spectrometer](#) section, previous page).
3. Tighten the screws on the cuvette holder to fasten the cuvette in place (see the [Adjusting the Cuvette](#) section).



## Adjusting the VIS Light Source Brightness

You can adjust the brightness of the VIS (Tungsten-Halogen) source manually using a screwdriver or by sending the commands via the I2C bus.

### Adjusting the VIS Light Source Manually

Use a 0.100" flathead screwdriver through the side of the unit to adjust the VIS source brightness as shown in the figure below:

- Clockwise turn = brighter
- Counter clockwise turn = dimmer



### Adjusting the VIS Light Source Using Commands

You can send the commands via I2C to adjust the brightness of the VIS light source. The I2C address is 0x0C.

► **Procedure**

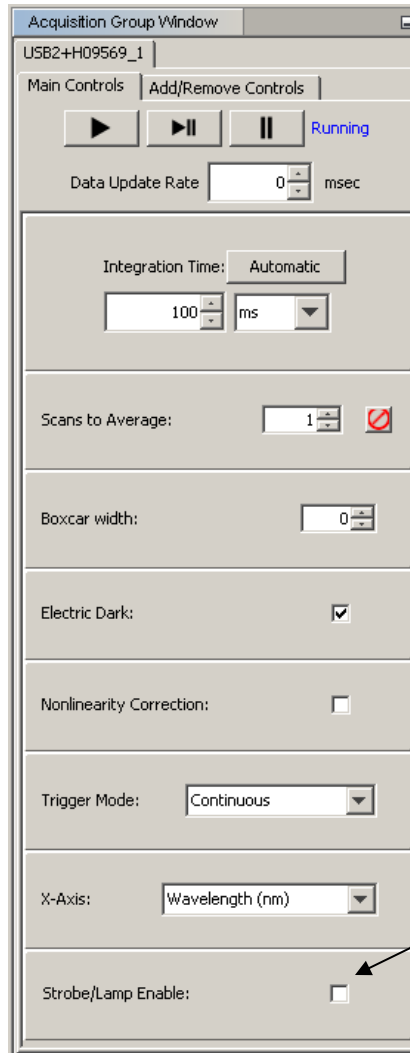
1. Send an initialize command: 3F 00 01
2. Send commands to adjust the brightness: 0x17 *xx xx*

Where *xx xx* = 00 00 to FF FF (varying from minimum to maximum brightness)

# Using the Sampling System

## ► Procedure

1. Start the spectrometer operating software (OceanView).
2. Open the internal shutter on the FLAME-DA-CUV-UV-VIS. To do this,
  - For OceanView, check the **Strobe/Lamp Enable** check box on the Acquisition Group window.



- For SpectraSuite software, check the **Strobe/Lamp Enable** check box on the Acquisition toolbar.
3. In OceanView, use the Light Source slide control to adjust the voltage to the Tungsten-Halogen bulb (0 to 100%) for the Visible range. The setting persists when you log out and then back in to OceanView.

## Specifications

Dimensions (L x W x H)	124.1 x 88.9 x 40.1 mm
Weight	350 g
Power Source	5 V DC external supply (included)
Wavelength Range (source)	200-1100 nm
Cuvette Path Length	1 cm
Cuvette Shape	Square
Light Source	Combined Deuterium and Tungsten-Halogen
Bulb Life (hours)	800 (deuterium); 2,000 (tungsten)
Time to Stabilized Output	~30 minutes

## Product Upgrades, Repairs and Servicing

Occasionally, you may find that you need Ocean Optics to make a change or an upgrade to your system. To facilitate these changes, you must first contact Customer Support and obtain a Return Merchandise Authorization (RMA) number. Please contact Ocean Optics for specific instructions when returning a product.

### Repairs

Sometimes accidents happen! If you need to return your Ocean Optics product for repair, here is what to do:

► **Procedure**

1. Contact us to speak to an Ocean Optics representative about the problem. If it is determined that the product must be returned, the representative will issue an RMA number.
2. Package your product, ideally in the original packaging, and return it to Ocean Optics, along with the RMA number that you received.

---

**Note**


For RMA returns under warranty we will organize and pay for shipping both ways. For accidental damage, you only pay to have the product delivered to your closest Ocean Optics or OOI Distributor Office.

Upon careful examination, we'll advise you with an estimate. When your product is ready, it will be returned to you.

---



### **FCC COMPLIANCE**

- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which the user will be required to correct the interference at his own expense.
  -  **WARNING:** The authority to operate this equipment is conditioned by the requirement that no modifications will be made to the equipment unless the changes or modifications are expressly approved by the manufacturer.
- 

### **EU EMC WARNING**

Class A equipment is intended for use in an industrial environment. In other environments, potential difficulties in ensuring electromagnetic compatibility may arise due to conducted as well as radiated disturbances.

---

