

ISS-UV/VIS

Integrated Sampling System

Installation and Operation Instructions

Description

The ISS-UV-VIS Integrated Sampling System is a combination of a RF deuterium source with a tungsten halogen bulb connected to a cuvette holder for 1-cm cuvettes. The cuvette holder attaches directly to the light source and has a 5-mm diameter f/2 collimating lens to collect the light. The ISS-UV-VIS can be operated manually or through the spectrometer operating software.



Parts Included

The ISS-UV/VIS Integrated Sampling System ships with the following components:

- ISS-UV-VIS Deuterium Tungsten Light Source/Cuvette Holder
- Power cord for connecting the ISS-UV/VIS to outlet
- 15-pin accessory cable for software control of the ISS-UV/VIS

Installing the Sampling System

Do not attempt to connect the ISS-UV/VIS to the spectrometer without following the installation instructions in this section. Furthermore, ensure that the spectrometer operating software (OOIBase32 or SpectraSuite) is installed on your PC and that the spectrometer is obtaining data before connecting the ISS-UV/VIS.

WARNINGS

- **The light beam emitted from the ISS-UV/VIS contains ultraviolet radiation and can cause eye damage. Never look directly into the light source and always use safety goggles when working with this product.**
 - **Dangerous voltage levels are present, and there are no user-serviceable parts. Do not open the unit.**
 - **For any experiments using UV light, we recommend using our solarization-resistant fiber.**
 - **Contact Ocean Optics for bulb replacement.**
 - **Do not use this instrument for any clinical or diagnostic measurements.**
 - **Dropping the unit can cause permanent damage. Handle with care.**
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Adjusting the Fit of the Cuvette

The ISS-UV-VIS is designed to hold 1-cm square cuvettes. When properly adjusted, the cuvette should fit snugly into the holder.

► **Procedure**

1. Locate the two ball plunger screws.
2. Use a small flathead screwdriver to loosen the two ball plunger screws until the end of each screw 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 an optical fiber to the SMA connector on the front of the ISS-UV-VIS and attach the other end of this fiber to the SMA connector on your spectrometer.
3. Plug the wall transformer into a standard 110 V outlet. Plug the 12 V output into the back of your ISS-UV-VIS above the **12V** label. For users of European-version wall transformers, plug the transformer into a standard 220 V outlet. At this time, the green LED indicator light on the front of the lamp will be lit. This indicator light only means that the lamp is receiving power, not that the deuterium and tungsten bulbs are on.

Operating the ISS-UV-VIS Manually

► Procedure

1. Find the switch on the back of the ISS-UV-VIS.
2. There are three positions: **On**, **Off**, and **Remote**. For Manual operation, move the switch to the **On** position. There can be up to a 1.5 second delay between switching the lamp to on and the bulbs igniting. If the lamp has not been used recently, the deuterium bulb may take up to 60 seconds to ignite.
3. For 0.3% peak-to-peak stability, allow 30 minutes warm-up time before taking your measurements.

Operating the ISS-UV-VIS Through Software

► Procedure

1. Take the 15-pin accessory cable and plug one end into the spectrometer. Connect the other end of the accessory cable into the back of the ISS-UV-VIS.
2. Find the switch on the back of the ISS-UV-VIS. There are three positions: **On**, **Off**, and **Remote**. For Software operation, move the switch to the **Remote** position. Moving the switch to the **Remote** position enables you to control the lamp through the software, whether you are using OOICChem, OOIBase32, or SpectraSuite.
3. Start the operating software.
 - For SpectraSuite software, check the **Strobe/Lamp Enable** check box on the Acquisition toolbar to turn the light source in the ISS-UV-VIS on. Uncheck this box to turn the light source off.
 - For OOIBase32 software, select **Strobe Enable** from the OOIBase32 Acquisition Parameters menu bar.
 - For OOICChem software, select **Spectrometer | Enable Strobe** from the menu.

There can be up to a 1.5 second delay between turning the bulbs on via the software and the bulbs igniting. If the lamp has not been used recently, the deuterium bulb may take up to 60 seconds

3. For 0.3% peak-to-peak stability, allow 30 minutes warm-up time before taking your measurements.

Disabling the Tungsten or Deuterium Bulb

It is possible to disable the deuterium or the tungsten bulb in the ISS-UV-VIS. Both bulbs are enabled at the time of manufacture. In order to disable the deuterium or tungsten bulb, you must remove the casing of the ISS-UV-VIS.

Disabling the Deuterium Bulb

It is possible to enable or disable the deuterium lamp. Jumper block JA of the ISS-UV-VIS's circuit board controls the deuterium bulb.

- Short pins 2-3 (that is, place a jumper over pins 2-3 of JA) to enable the deuterium bulb.
- Short the pins 1-2 (that is, place a jumper over pins 1-2 of JA) to disable the deuterium bulb.

Disabling the Tungsten Bulb

It is possible to enable or disable the tungsten lamp. Jumper block JB of the ISS-UV-VIS's circuit board controls the tungsten bulb.

- Short pins 2-3 (that is, place a jumper over pins 2-3 of JB) to enable the tungsten bulb.
- Short pins 1-2 (that is, place a jumper over pins 1-2 of JB) to disable the tungsten bulb.

Using Solarization-resistant Fibers

Solarization is the loss of color or transparency in glass due to exposure to ultraviolet radiation. If you are using a UV light source, the UV radiation degrades the silica in a standard patch cord fiber over time, resulting in increased overall absorption values and invalid data. This degradation is called solarization.

Our 300- μm Diameter Solarization-resistant Optical Fiber consists of a silica core, surrounded by a silica cladding material. The fiber is then coated in aluminum. Our solarization-resistant fibers are best used for regions below 250 nm, or for applications where exposure to long-term UV light occurs.

Replacing the Bulbs

The deuterium and tungsten bulbs *cannot* be replaced by unauthorized personal. To replace a bulb in the ISS-UV-VIS, contact Ocean Optics.

Specifications

Deuterium wavelength range:	200-400 nm
Tungsten wavelength range:	360-850 nm
Deuterium bulb life:	800 hours
Tungsten bulb life:	2,000 hours
Ignition delay:	~1.5 seconds to 60 seconds
Peak-to-peak stability:	0.3% in 30 minutes 1.0% in 10 minutes
Connector:	SMA 905
Power input:	12 V
Power requirement:	12 VDC/420 mA
Power consumption:	5 watts (deuterium 3.8 watts, tungsten 1.2 watts)

