

ISS-UV-VIS Integrated Sampling System

The **ISS-UV-VIS INTEGRATED SAMPLING SYSTEM** is a combination of a RF deuterium source with a tungsten 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. The ISS-UV-VIS can be operated manually or through the software.

Parts Included

- ◆ ISS-UV-VIS Integrated Sampling System
- ◆ Power cord for connecting the ISS-UV-VIS to outlet
- ◆ 15-pin accessory cable for software control of the ISS-UV-VIS

Caution!

- ☠ The beam emerging from the ISS-UV-VIS produces ultraviolet radiation. Direct eye contact could cause eye injury. Safety eyewear is recommended.
- ☠ Never look directly into the light source or stare at the diffuse reflected beam.
- ⚠ Dangerous voltages present. NO serviceable parts inside unit. The deuterium and tungsten bulbs cannot be replaced by unauthorized personal. To replace a bulb in the ISS-UV-VIS, contact Ocean Optics.
- ⚠ For any experiments using UV light, we recommend using our solarization-resistant fiber.
- ⚠ This instrument should not be used for any clinical or diagnostic purposes.

Operation

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.

1. Locate the two ball plunger screws.
2. Use the screwdriver to loosen the ball plunger screws until the ball end of the screw is just visible in the holder.
3. Insert your cuvette into the holder.
4. Gently tighten the screws until the ball contacts the cuvette and starts to compress. Do not over-tighten.

Setting Up the ISS-UV-VIS

1. 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.
2. 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

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

1. Connect the 15-pin accessory cable from the spectrometer to 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 OOIChem or OOIBase32 software.
3. When using OOIChem software, select **Spectrometer | Enable Strobe** from the menu to turn it on and off.
4. When you want to control the ISS-UV-VIS through OOIBase32 software, select or deselect the **Strobe Enable** box in the dialog bar above the graph area to turn the bulbs on and off.
5. 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 to ignite.
6. 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

Jumper block JA of the ISS-UV-VIS's circuit board controls the deuterium bulb. Short the 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

Jumper block JB of the ISS-UV-VIS's circuit board controls the tungsten bulb. Short the pins 2-3 (that is, place a jumper over pins 2-3 of JB) to enable the tungsten bulb. Short the pins 1-2 (that is, place a jumper over pins 1-2 of JB) to disable the tungsten bulb.

Using Solarization-resistant Fibers

For any experiments using UV light, we recommend using our solarization-resistant fiber. Our 300- μ m 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 where exposure to long-term UV light occurs. If you do not use solarization-resistant fibers when 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.

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)