ISS-2 Integrated Sampling System

The ISS-2 Integrated Sampling System is a fully integrated 1-cm cuvette holder and tungsten halogen light source. The ISS-2 couples to Ocean Optics spectrometers via an optical fiber to create a small-footprint system for VIS-NIR (approx. 360 to 1100 nm) measurements.

The ISS-2 light source features a 900-hour bulb. Additionally, the fan in the ISS-2 is exposed (not enclosed in the base) and requires particular care when handling.

Parts Included

The ISS-2 ships with the following items:

- ISS-2 cuvette holder and light source assembly
- 12 VDC power supply
- 1-cm square plastic cuvette
- Screwdriver (for adjusting cuvette fit)
- Allen wrench (for adjusting collimating lens on light source)

Warning

The Light Source in the ISS-2 gets extremely hot during operation. After use, allow sufficient time for the lamp to cool before handling the ISS-2.

Using the ISS-2

The following sections provide instructions on setting up and using the ISS-2 Integrated Sampling System:

Assembling the ISS-2

On newer shipments, Ocean Optics packages the cuvette holder and the ISS-2 light source as separate components that you must manually connect.

To assemble the ISS-2, screw the cuvette holder onto the SMA-905 connector of the ISS-2 light source until snug.

Attaching Fibers to the ISS-2

Follow the steps below to attach fibers to the ISS-2:

1. Connect an SMA 905-terminated optical fiber to the collimating lens of the ISS-2's cuvette holder.
2. Connect the other end of the fiber (the read fiber) to the SMA 905 connector of the spectrometer.

Adjusting the Fit of the Cuvette

The ISS-2 ships preset for use with a 1-cm square cuvette. When properly adjusted, the cuvette should fit snugly into the cuvette holder. Follow the steps below to adjust the fit of the cuvette, if necessary:

1. Locate the two ball plunger screws.
2. Use the screwdriver to loosen the two ball plunger screws until the ends are visible in the cuvette holder.
3. Insert the cuvette into the cuvette holder.
4. Tighten the ball plunger screws until the ball contacts the cuvette and starts to compress.

Note: Do not overtighten the ball plunger screws. Overtightening can result in cuvette damage.

Installing Filters

Follow the steps below to install filters in the ISS-2:

1. Loosen the filter clamping screw with an Allen wrench.
2. Insert the filter into the filter slot of the ISS-2. The filter slot accommodates filters up to 6 mm thick.
3. Gently tighten the filter clamping screw with the Allen wrench to secure the filter in place.

Turning On the Lamp

Follow the steps below to turn on the lamp in the ISS-2:

1. Plug the transformer end of the power cable into a 110 V electrical outlet.
2. Plug the 12 V barrel connector on the power cable into the power port on the back of the ISS-2.
3. Screw a fiber into the SMA 905 connector of the ISS-2.
4. Switch the On/Off switch on the rear of the ISS-2 to the On position.

Replacing the Bulb in the ISS-2

Follow the steps below to replace the bulb in the lamp of the ISS-2:

1. Order a replacement bulb (item code LS-1-B) from Ocean Optics.
2. Switch the On/Off switch on the rear of the ISS-2 to the Off position and allow the lamp sufficient time to cool.
3. Remove the four screws that secure the fan to the base of the ISS-2. Take particular care to save the washers for each screw (typically two per screw), as you will need to replace them when replacing the screws.

   Note: Two of the four screws also hold the front two legs of the ISS-2 in place.
4. Pull the fan gently (along with the legs) away from the lamp to remove the fan.
5. Loosen the setscrew underneath the fan with the included Allen wrench. This setscrew holds the bulb in place.

   Note: You do not need to remove the setscrew – loosening it is sufficient.
6. Remove the setscrews above each of the back legs of the ISS-2 using an Allen wrench (not included). These screws keep the two halves of the lamp together.

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7. Separate the two halves of the lamp by pulling gently on each half.
8. Pull the old bulb out of the bulb housing.
9. Detach the wire and socket from the lamp leads, remove the bulb unit, and discard.
10. Plug the new bulb into the wire and lamp leads, and then slide it forward into the front of the lamp as far as it will go.
11. Reconnect the two pieces of the ISS-2 light source, tucking the internal wiring into place inside the unit.
12. Replace the setscrews above each of the back legs of the ISS-2 (removed in Step 6) using an Allen wrench (not included).
13. Tighten the setscrew on the bottom of the ISS-2 to secure the bulb unit in place.
14. Reconnect the fan to the bottom of the ISS-2 with the four screws removed in Step 3. Reposition the original washers (if available) between the fan and the base of the unit when connecting the screws.

Specifications

Path length:	1 cm
Collimating lens:	BK 7 glass (~360 nm – 2 μm*), 5 mm diameter, f/2
Collimating lens termination:	SMA 905
Filter slot:	Accepts filters up to ¼" (6 mm) thick
Base material:	Aluminum
Spectral range:	360 nm – 2 μm
Dimensions:	9.0 cm x 5.0 cm x 3.2 cm (LWH) 3.5" x 2.0" x 1.25" (LWH)
Power input:	12 VDC/800 mA – 2.1 mm center positive
Power output:	6.5 watts
Bulb life:	900 hours
Bulb color temperature:	3100K
Output to bulb:	5 volts/1.3 amps
Output regulation:	0.2% voltage
Time to stabilized output:	~30 minutes
Bulb output:	7400 foot-candles (7.4 MSCP)

* Though the product can be used to 2 μm, you can configure it to only "see" to 1100 nm with the spectrometer.