



## Raman Sample Holders

Ocean Optics offers several sample holders for Raman analysis of liquids and solids, including a multipurpose holder that can be configured for fluorescence and other measurements. The holders accommodate Raman probes from 9.5 mm-12.7 mm diameter, and 1 cm pathlength cuvettes and vials of various dimensions.

The **RM-SERS-SHS** holder is ideal for surface enhanced Raman spectroscopy (SERS) substrates, which comprise nanoparticle chemistries on slides. The holder accommodates standard glass SERS slides and connects to a Raman probe. The **RM-SERS-SHS** provides accurate positioning for the Raman measurement, avoids the influence of ambient light, and improves the accuracy of the Raman measurement.

The **RM-LQ-SHS** holder accommodates vials and cuvettes. It has a magnetic cover, making it easy to load and unload samples, block ambient light, and improve the accuracy of Raman measurements.

Also available is the **OOA-RAMAN-SH** sample holder for vial and cuvette measurements, which has a positioning screw to optimize the focus of the laser onto the sample.

The multipurpose **OOA-HOLDER-RFA** is a modular fixture adjustable for Raman, fluorescence, absorbance and reflection measurements. The holder is compact, lightweight and easy to load and unload. Its design protects against damage that can be caused by contact between the probe and cuvettes.

## Specifications

Engineering Specifications	RM-SERS-SHS	RM-LQ-SHS	OOA-HOLDER-RFA	OOA-RAMAN-SH
Techniques supported:	Raman	Raman	Raman, fluorescence, absorbance	Raman
Base material:	Aluminum	Aluminum	Aluminum	Aluminum
Probe diameter	9.5 mm	9.5 mm	Raman probe: 9.5 or 12.7 mm; Reflection probe: 6.35mm	9.5 mm
Cuvette Type:	Standard microscope slide 75 x 25 mm or <a href="#">SERS substrates</a>	1 cm pathlength square or 15 mm OD vials	1 cm pathlength square	1 cm pathlength square
Translation stage:	No	No	Yes	Yes
Mirror/cuvette plugs:	No	Yes	Yes	No
Dimensions (LWH, mm):	75 X 75 X 35 mm	115 X 80 X 70 mm	110 X 70 X 130 mm (155 X 70 X 162 mm, optional)	80 X 47 X 81 mm
Weight:	186 g	629 g	1279 g	630 g
Temperature range:	-20°C to 80°C	-20°C to 80°C	-20°C to 80°C	-20°C to 80°C
Probe type	<a href="#">RPB Raman probes</a>	<a href="#">RPB Raman probes</a>	<a href="#">RPB Raman probes</a>	<a href="#">RPB Raman probes</a>

### 1. RM-SERS-SHS



## 1.1 Requirement Specification

The special holder for the SERS substrate from Ocean Optics is suitable for the modular Raman probe, which can provide accurate positioning for the measurement, as well as isolating from the impact of ambient light to improve the measurement accuracy.

## 1.2 Design Specification

### 1.2.1 Features of the RM-SERS-SHS Holder

- Aluminum + stainless steel, suitable for modular Raman probe.
- OOI glass substrate SERS.
- Provide accurate positioning for measurement, avoid influence of ambient light, and improve the accuracy of measurement.
- It can be connected to probe directly.
- The base can be disassembled, small size.
- Reasonable clamping design without damaging the slides.
- The base can be fixed on the optical platform.

## 1.3 Instructions



- 1) Insert the SERS slide to the SERS holder.
- 2) Insert the probe to the SERS holder.
- 3) Lock the probe.
- 4) Measure the sample accordingly. If needed, adjust the height position of the probe to focus the laser on the sample.

## 2. RM-LQ-SHS



### 2.1 Requirement Specification

For Raman applications, the distance between Sample and Probe tips will determine the Raman signal intensity. The sample holder allows the user to adjust the distance between Sample and Probe tips accurately and conveniently. This liquid sample holder is suitable for the modular Raman probe. It can isolate the impact of ambient light to improve the measurement accuracy.

### 2.2 Design Specification

#### 2.2.1 Features of the RM-LQ-SHS Sample Holder

- It can adjust the distance between probe and sample accurately.
- The height of the sample holder can be adjusted to get the best signal.
- It is compact and lightweight, easy loading and unloading.
- No additional adjustment, automatically adapt to different sizes of sample vials, suitable for modular Raman probe.
- It can reduce the influence of ambient light and improve the accuracy of measurement.
- It can be used for bottle-side measurement.
- Bottom base can be disassembled, it also can be fixed in optics platform.
- Secured with a nut, which will not fall off.

### 2.2.2 The structure of the RM-LQ-SHS Sample Holder



### 2.3 Instructions



- 1) Open the top cover.
- 2) Pull out the clamp, insert the liquid samples or cuvette vials inside the box.
- 3) Put the top cover back.
- 4) Insert the probe to the liquid sample holder.
- 5) Lock the probe with the screw.
- 6) Measure the sample.

### 3. OOA-HOLDER-RFA



#### 3.1 Requirement Specification

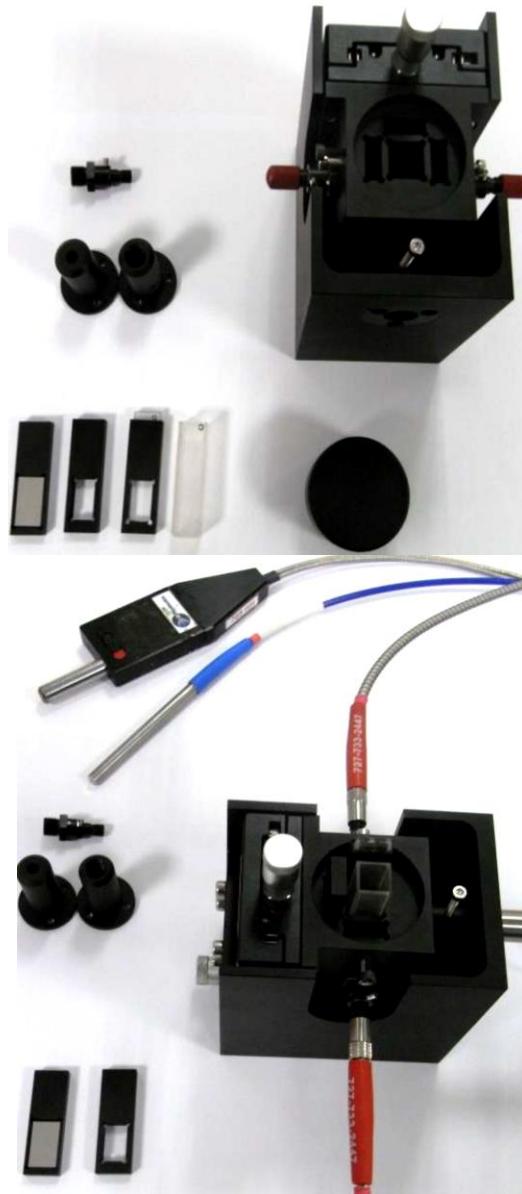
OOA-HOLDER-RFA is a versatile holder and very useful for various applications using Ocean Optics fiber coupled spectrometers. It can be used for Raman probe holder, fluorescence holder, absorbance holder and reflection holder.

#### 3.2 Design Specification

##### 3.2.1 Features of OOA-HOLDER-RFA

- An XZ axis mobile stage for adjusting the focus position of the Raman probe The range in the x-direction is 10 mm and in the z-direction is 12.5 mm.
- Supports several different probe sizes (e.g. 6.35 mm, 9.5 mm, and 12.7 mm diameter probes).
- Supports 10 and 1 mm cuvettes.
- Mirror plugs (2pcs; 15 mm X 5.7 mm X 45 mm) and cuvette plug (2pcs; 15 mm X 5.7 mm X 45 mm) for 1mm light path cuvette for absorbance and reflection measurement.
- 90° angle cross design support for fluorescence measurement.
- Mirrors: 2pcs, Coating: Al+MgF<sub>2</sub> (coating: Al, optional)

### 3.2.2 The structure of OOA-HOLDER-RFA



## 3.3 Instructions

- 1) Open the top cover.
- 2) Insert cuvette inside the box.
- 3) Put the top cover back.
- 4) Insert the appropriate probe and fiber ends to the sample holder.
- 5) Measure the sample.

## 4. OOA-RAMAN-SH



### 4.1 Requirement Specification

For Raman measurements, the distance between the sample and probe will determine the Raman signal intensity. The sample holder allows the user to adjust the distance between the sample and probe accurately and conveniently. This vial and cuvette sample holder is suitable for the modular Raman probe. It can eliminate ambient light to improve the measurement accuracy.

### 4.2 Design Specification

#### 4.2.1 Features of the OOA-RAMAN-SH Sample Holder

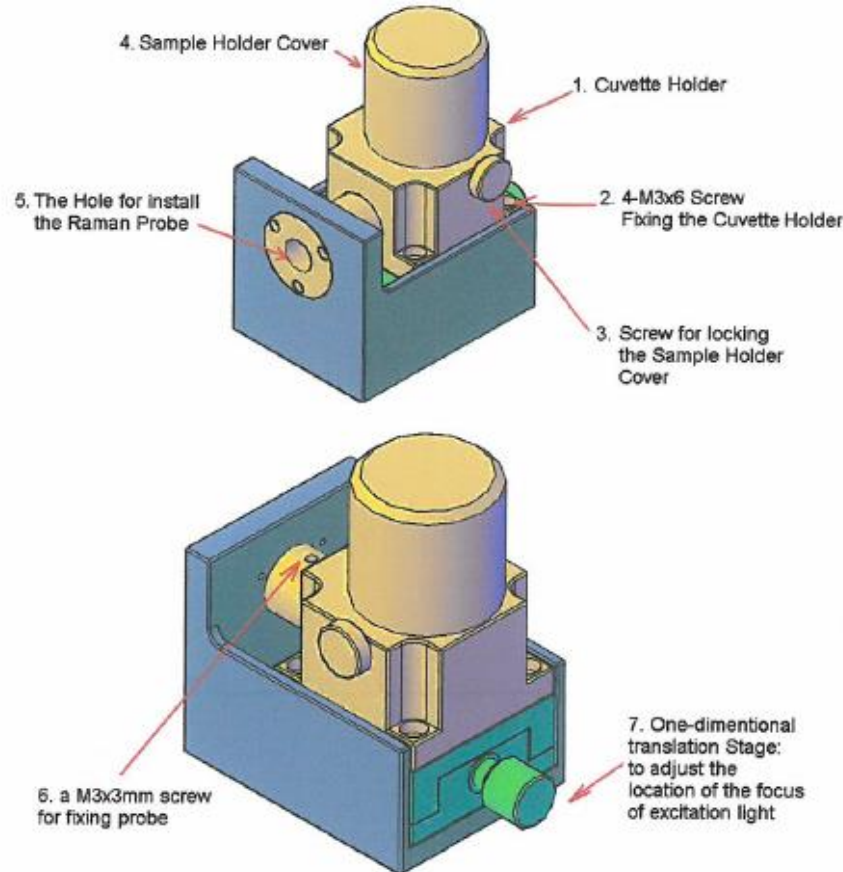
- OOA-RAMAN-SH works with a variety of sample sizes. The compatible cuvette dimensions are 13 x 13 mm square, and the compatible dimensions for vials are 12.4 mm, 15 mm, and 23 mm in diameter.
- The hole at the side of the holder is to hold the Raman probe. The through-holes of different shapes and sizes at the top are designed for different cuvettes or vials. There is a shallower counter bore on the top to connect with the cover.
- 4-M3x6mm screws to fix the sample holder to the translation stage.
- A M3x9mm screw with hand wheel for fixed the sample holder cover: the sample holder cover has a slot on one side is used to fix the sample holder cover, screw and it should not move or fall off during the movement of the micro translation stage.
- Sample holder cover is used to block ambient light during the experiments.
- The hole at the side of Raman sample holder is used to stabilize and protect the probe. It



omits ambient light, where a M3x3 screw is used to fix the probe to the Raman sample holder.

- User can adjust the one-dimensional translation stage. It can adjust the location of the focus of excitation light to meet the demand of detecting. The micro-translation can move a total distance of 8 mm (4 mm in each direction).
- The holder is compatible with the OOI Raman Probe RPB.

#### 4.2.2 The structure of the OOA-RAMAN-SH Sample Holder



### 4.3 Instructions

1. Open the top cover.
2. Insert the appropriate sample chamber to accommodate your vial or cuvette.
3. Insert sample vial or cuvette.
4. Put the top cover back on, and line up the slot with the hand screw. Fasten the cover down with the hand screw on the side.
5. Insert the Raman probe in the hole on the side of the holder. Carefully, push it in as far as it will allow.
6. Lock the probe in place with the M3x3 screw.
7. Measure the sample. Adjust the one-dimensional stage to change the location of the focused laser beam for the most intense Raman signal.