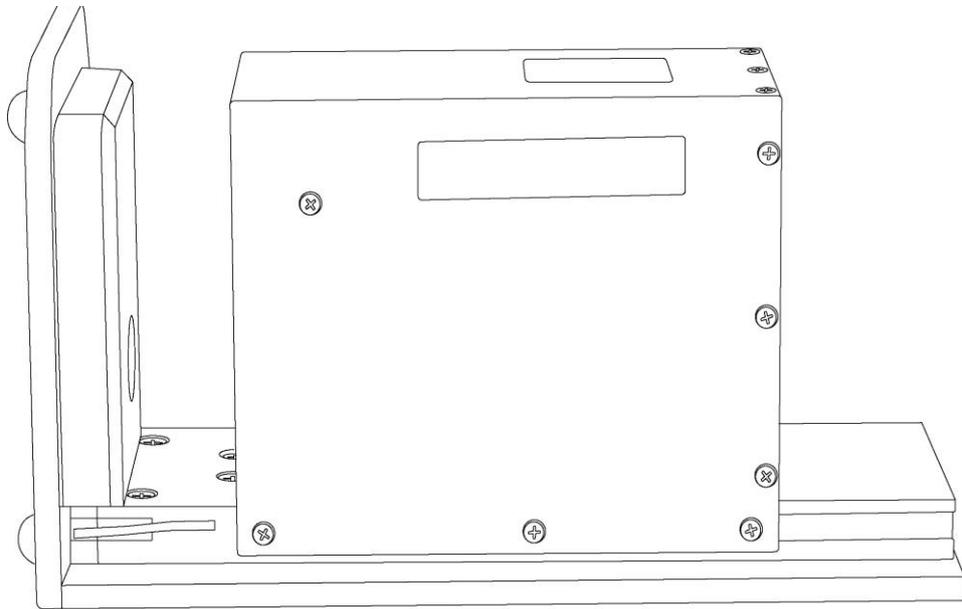


# Operating Instructions

## Enclosed Sample Compartment





## Table of Contents

<b>1 About this document.....</b>	<b>4</b>	<b>3 Product description .....</b>	<b>8</b>
1.1 Warnings.....	4	3.1 Enclosed Sample Compartment .....	8
1.2 Symbols on the device.....	4	<b>4 Incoming product acceptance and product identification .....</b>	<b>9</b>
1.3 U.S. export compliance .....	4	4.1 Incoming acceptance .....	9
1.4 Glossary .....	5	4.2 Scope of delivery .....	9
<b>2 Basic safety instruction .....</b>	<b>6</b>	<b>5 Operation .....</b>	<b>10</b>
2.1 Requirements for the personnel.....	6	5.1 Testing a sample .....	10
2.2 Designated use .....	6	<b>6 Technical data .....</b>	<b>11</b>
2.3 Electrical safety .....	6	6.1 Specifications.....	11
2.4 Operational safety.....	6	<b>7 Supplementary documentation .....</b>	<b>12</b>
2.5 Product safety.....	7	<b>8 Index.....</b>	<b>13</b>
2.6 Important safeguards .....	7		
2.7 Health and safety considerations .....	7		

# 1 About this document

## 1.1 Warnings

Structure of Information	Meaning
<b>⚠ WARNING</b> <b>Causes (/consequences)</b> If necessary, consequences of non-compliance (if applicable) ▶ Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid the dangerous situation can result in a fatal or serious injury.
<b>⚠ CAUTION</b> <b>Causes (/consequences)</b> If necessary, consequences of non-compliance (if applicable) ▶ Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or more serious injuries.
<b>NOTICE</b> <b>Cause/situation</b> If necessary, consequences of non-compliance (if applicable) ▶ Action/note	This symbol alerts you to situations which may result in damage to property.

Table 1. Warnings

## 1.2 Symbols on the device

Symbol	Description
	The Laser Radiation symbol is used to alert the user to the danger of exposure to hazardous visible laser radiation when using the system.
	The High Voltage symbol that alerts people to the presence of electric potential large enough to cause injury or damage. In certain industries, high voltage refers to voltage above a certain threshold. Equipment and conductors that carry high voltage warrant special safety requirements and procedures.
	The WEEE symbol indicates that the product should not be discarded as unsorted waste but must be sent to separate collection facilities for recovery and recycling.
	The CE Marking indicates conformity with health, safety, and environmental protection standards for products sold within the European economic area (EEA).

Table 2. Symbols

## 1.3 U.S. export compliance

The policy of Endress+Hauser is strict compliance with U.S. export control laws as detailed in the website of the [Bureau of Industry and Security](#) at the U.S. Department of Commerce.

## 1.4 Glossary

Term	Description
EEA	European economic area
cm	Centimeter
ESC	Enclosed sample compartment
HCA	Raman calibration accessory
NCO	Non-contact optic
NMR	Nuclear magnetic resonance
P/N	Part number
WEEE	<a href="#">Waste Electrical and Electronic Equipment</a>

Table 3. Glossary

## 2 Basic safety instruction

### NOTICE

- ▶ The safety information in this section is specific to the Enclosed Sample Compartment. Refer to the *Raman Rxn2*, *Raman Rxn4*, and *Raman Rxn5 Operating Instructions* for additional Analyzer-related safety information about working with lasers.

### 2.1 Requirements for the personnel

- Installation, commissioning, operation, and maintenance of the Enclosed Sample Compartment may be carried out only by specially trained technical personnel.
- The technical personnel must be authorized by the plant operator to carry out the specified activities.
- The electrical connection may be performed only by an electrical technician.
- The technical personnel must have read and understood these Operating Instructions and must follow the instructions contained therein.
- Faults at the measuring point may only be rectified by authorized trained personnel. Repairs not described in this document must be carried out only directly at the manufacturer's site or by the service organization.

### 2.2 Designated use

The Enclosed Sample Compartment is designed for use as a sample chamber, focus drive, and insert for the following:

- Cuvettes
- Vials
- Bottles
- Nuclear magnetic resonance (NMR) tubes
- Custom-designed inserts to accommodate the following:
  - Flow cells
  - Vacuum lines
  - Temperature control

Use of the Enclosed Sample Compartment for any purpose other than that described, poses a threat to the safety of people and of the entire measuring system and is not permitted.

### 2.3 Electrical safety

As the user, you are responsible for complying with the following safety conditions:

- Installation guidelines.
- Local standards and regulations electromagnetic compatibility.

### 2.4 Operational safety

Before commissioning the entire measuring point:

1. Verify that all connections are correct.
2. Ensure that electrical cables and optical fiber connections are undamaged.
3. Do not operate damaged products, and protect them against unintentional operation.
4. Label damaged products as defective.

During operation:

1. If faults cannot be rectified: products must be taken out of service and protected against unintentional operation.
2. Keep the door closed when not carrying out service and maintenance work.

### ⚠ CAUTION

**Activities while the Enclosed Sample Compartment is in operation introduce risk of exposure to measured materials.**

- ▶ Follow standard procedures for limiting exposure to chemical or biological materials.

- ▶ Follow workplace policies on personal protective equipment including wearing protective clothing, goggles, and gloves and limiting physical access to analyzer location.
- ▶ Clean any spills using the appropriate site policies on cleaning procedures.

## 2.5 Product safety

The Enclosed Sample Compartment is designed to meet state-of-the-art safety requirements, has been tested, and left the factory in a condition in which it is safe to operate. The relevant regulations and international standards have been observed. Devices connected to Raman Rxn analyzers must comply with the applicable safety standards.

## 2.6 Important safeguards

- Do not use the Enclosed Sample Compartment for anything other than its intended use.
- Do not open the enclosure of the Enclosed Sample Compartment when the laser is active. Samples should only be changed when the laser is deactivated.
- Do not look directly into the laser beam.
- Do not stare or focus a laser in a diffused direction.
- Do not point a laser at a mirrored surface.
- Do not leave attached and unused probes uncapped or unblocked.
- Avoid shiny surfaces and always use a laser beam block.

## 2.7 Health and safety considerations

It is the user's responsibility to understand and comply with all applicable safety regulations. These will vary based on the installation location of the instrument. Endress+Hauser takes no responsibility for determining the safe use of the instrument based on this qualification procedure.

## 3 Product description

### 3.1 Enclosed Sample Compartment

The Enclosed sample compartment (ESC) helps reduce the interference of ambient light to get accurate spectra for samples. The ESC is compatible with Endress+Hauser non-contact optics including the Rxn-10 and Rxn-20 probes with non-contact optics.

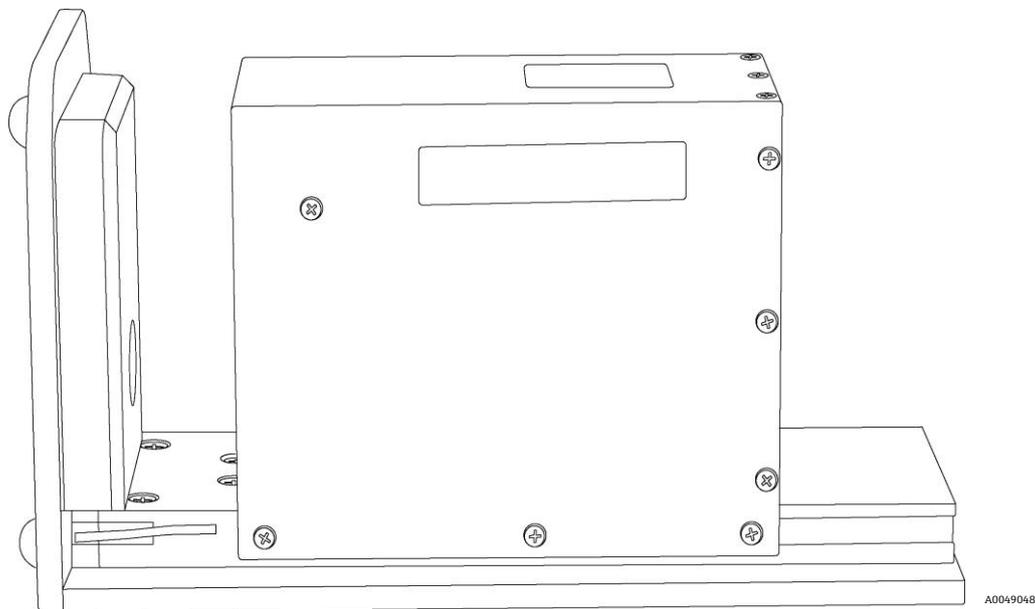


Figure 1. Enclosed Sample Compartment

#### NOTICE

- ▶ Additional options include three sampling kits: a cuvette holder for liquid samples, a powder holder, and a tablet holder. For Technical Service, refer to our website (<https://endress.com/contact>) for the list of local sales channels in your area.

## 4 Incoming product acceptance and product identification

### 4.1 Incoming acceptance

1. Verify that the packaging is undamaged. Notify the supplier of any damage to the packaging. Keep the damaged packaging until the issue has been resolved.
2. Verify that the contents are undamaged. Notify the supplier of any damage to the delivery contents. Keep the damaged goods until the issue has been resolved.
3. Check that the delivery is complete and nothing is missing. Compare the shipping documents with your order.
4. Pack the product for storage and transportation in such a way that it is protected against impact and moisture. The original packaging offers the best protection. Make sure to comply with the permitted ambient conditions.

If you have any questions, please contact your supplier or your local sales center.

#### NOTICE

- ▶ The Enclosed Sample Compartment calibration unit is not user-serviceable and requires no routine maintenance by the user.

#### 4.1.1 Identifying the product

The order code and serial number of your product can be found in the delivery papers.

#### 4.1.2 Manufacturer address

Endress+Hauser  
371 Parkland Plaza  
Ann Arbor, MI 48103 USA

### 4.2 Scope of delivery

The scope of delivery comprises:

- Enclosed Sample Compartment in the configuration ordered
- Enclosed Sample Compartment Operating Instructions
- Local declarations of conformity, if applicable
- Certificates for hazardous zone use, if applicable
- Enclosed Sample Compartment optional accessories, if applicable

If you have any queries: Please contact your supplier or local sales center.

#### NOTICE

- ▶ See the *Raman Calibration Accessory Operating Instructions* for information about calibrating probes.

## 5 Operation

### 5.1 Testing a sample

It is recommended that you follow the steps below to use the ESC with a probe and Raman RunTime to test a sample.

1. Determine which Rxn probe to use based on the type of sample testing to be performed.
2. Connect the probe to the ESC as shown below.

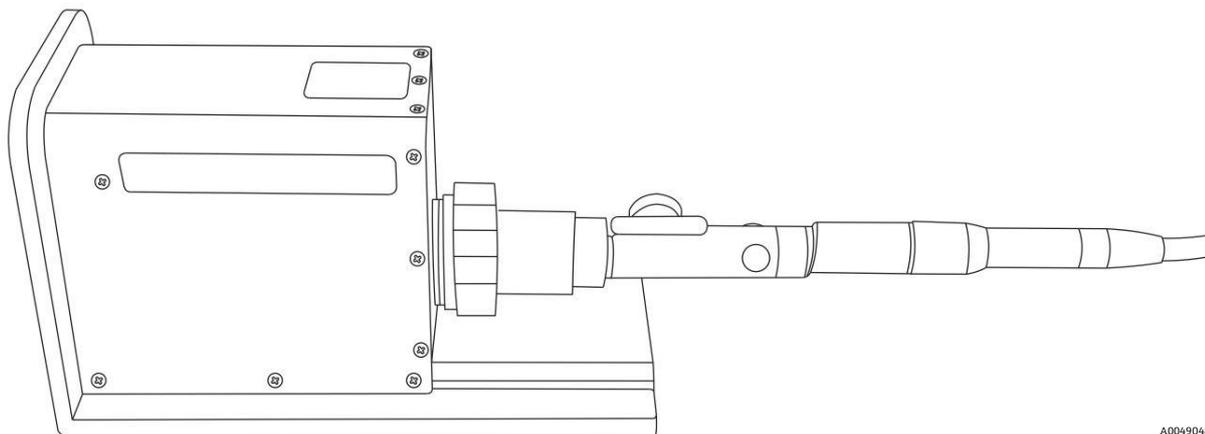


Figure 2. Enclosed Sample Compartment with probe attached

3. Slide the probe into place.

Once the focus is set to optimal for non-contact optics, or the immersion optic is immersed, tighten the nut to hold the optic firmly in optimal focus. In the case of the Non-contact optic (NCO), you need to focus the optic to find the optimal signal before tightening the nut.

4. Slide the ESC open.
5. Place a sample in the ESC.

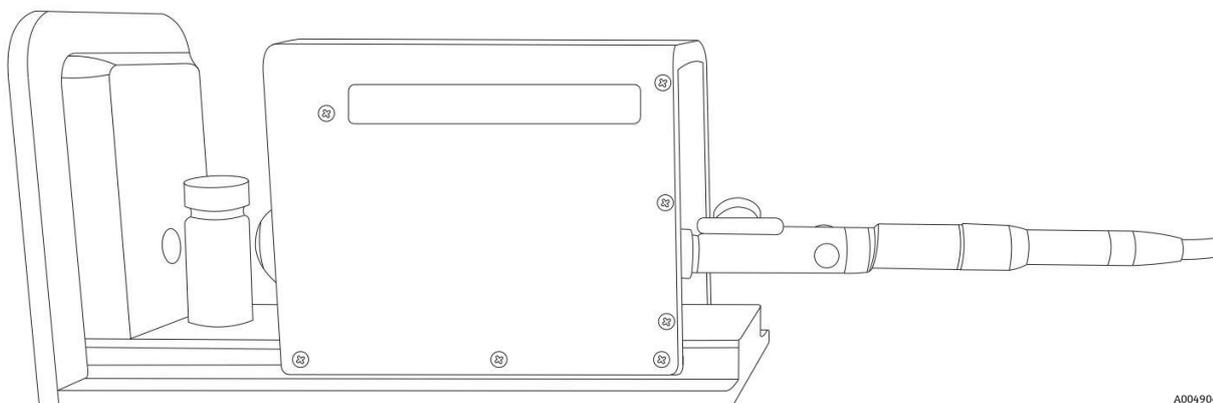


Figure 3. Enclosed Sample Compartment with sample

6. Slide the ESC shut.
7. Run your test in Raman RunTime.

## 6 Technical data

### 6.1 Specifications

Item	Description
Dimensions	20.8 cm × 10.67 cm × 12.7 cm (8.2 in. × 4.2 in. × 5.0 in.)
Probe Compatibility	Rxn-10 Rxn-20 Rxn-40
Sampling Kits	Cuvette holder (1-cm) Powder holder Tablet holder
Safety Features	Electrical interlock
Alternate Configuration	No interlock, no electrical configuration

Table 4. Enclosed Sample Compartment specifications

## 7 Supplementary documentation

All documentation is available:

- On the media device supplied (not included in the delivery for all device versions).
- Smart phone/tablet: Endress+Hauser Operations App.
- For Technical Documentation, refer to our website (<https://endress.com/downloads>).

Part Number	Document Type	Document Title
TI01638C	Technical Information	Enclosed Sample Compartment Technical Information

Table 5. Supplementary documentation

## 8 Index

alternate configuration, 11  
dimensions, 11  
enclosed sample compartment, 8  
export compliance, 4  
eye protection, 7  
glossary, 5  
health, 7  
interlock, 11  
manufacturer address, 9  
probe compatibility, 11  
product acceptance, 9  
safety  
    features, 11  
    product, 7  
sample, 10  
sampling kit, 8, 11  
scope of delivery, 9  
specifications, 11  
symbols, 4  
testing, 10  
us export compliance, 4

[www.addresses.endress.com](http://www.addresses.endress.com)

---