

Installation Instructions

LNG analyzer performance verification kit



Endress + Hauser 

People for Process Automation

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1 About this document

This manual contains information for users concerning the LNG analyzer performance verification kit.

1.1 Warnings



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

Table 1. Warnings

1.2 Symbols



Symbol	Description
	The Laser Radiation symbol is used to alert the user to the danger of exposure to hazardous visible and invisible 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.

Table 2. Symbols

1.3 U.S. export compliance

The policy of Endress+Hauser is in 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.

2 Product description

2.1 Function

The LNG analyzer performance verification kit is used for verifying Raman instruments and analyzers to ensure proper calibration. When used in conjunction with calibration protocols outlined in other manuals, it allows the user to ensure that the output from the analyzer is within the stated specifications. The LNG analyzer performance verification kit was created specifically for use with Raman instruments and analyzers manufactured by Endress+Hauser.

A method is defined as a chemical model designed for the application to which it is applied. Method files characterizing the expected response of the verification kit are stored on the analyzer or memory stick.

NOTICE

There are method files for each of the Raman Rxn analyzer systems.

- ▶ The file that corresponds to the user's instrument type must be used for this process.

2.2 Kit contents

The kit contents are shown below.



Figure 1: LNG analyzer performance verification kit contents

#	Description
1	Acetone wipe
2	Ampule breakers
3	Ampule packs
4	USB drive
5	Sample T cell
N/A	Analog thermometer (not pictured)

3 Use of the performance verification kit

⚠ WARNING

The performance of procedures, the use of controls, or the adjusting of the instrument other than as specified in this manual may result in hazardous radiation exposure.

3.1 Probe tip cleaning

The probe tip should be cleaned before performing verification. Refer to the applicable Raman spectroscopic probe operating instructions for cleaning procedures.

NOTICE

Failure to follow the specific probe tip cleaning procedures may result in improper verification of the analyzer or in damage to the probe window.

1. First, clean the tip with the included moist towelette.
2. Then clean the tip using the included acetone wipe.



Figure 2: Acetone wipe

3.2 Acetone ampule

⚠ CAUTION

The ampule is made of glass.

- ▶ Handle the ampule with care to avoid injury when open.
- ▶ Dispose of the ampule and cap properly to avoid injury to personnel handling discarded contents.



Figure 3: Acetone ampule with breaker

3.3 Sample T cell

The sample T cell is used to hold the surrogate liquid in contact with the probe during the verification process.

NOTICE

- ▶ Do not return the sample T cell to the storage case until all residual surrogate liquid has evaporated.

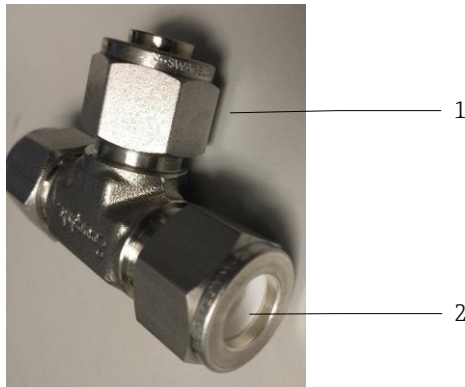


Figure 4: Sample T cell

#	Description
1	Plug cap
2	Probe insertion point

3.4 Horizontal probe configuration

A horizontal probe position is preferred for the verification process. Follow the steps below to connect the sample T cell to the probe and fill the cell with the verification sample.

1. Insert the probe into the sample T cell until the stop, and then hand tighten the probe and the plug nuts.



Figure 5: Sample T cell in horizontal position

2. Open the ampule using the ampule breaker.
3. Pour the ampule contents into the sample T cell. Two ampules must be used to fill the sample T cell.
4. Once filled, place the plug cap on the top T until it stops. A small amount of acetone should come out.
5. Hand tighten the probe nut. All connections should be tight enough to avoid leaks and evaporation.

3.5 Vertical probe configuration

If a horizontal probe configuration is not possible, follow the steps below to perform verification in a vertical configuration.

1. Insert the two plug caps on the bottom and middle portions of the sample T cell.
2. Open the ampule using the ampule breaker.
3. Pour the ampule contents into the sample T cell. Two ampules must be used to fill the sample T cell.
4. Once filled, place probe into the sample T cell until it stops. A small amount of acetone should come out.
5. Hand tighten the probe nut. All connections should be tight enough to avoid leaks and evaporation.



Figure 6: Sample T cell in vertical position

3.6 Temperature measurement

The response of this method is dependent on the ambient temperature. A thermometer is included in the LNG analyzer performance verification kit so the temperature can be entered during the verification process.

3.7 Verification

The protocol for the LNG analyzer performance verification kit differs among software packages. Refer to the applicable Raman Rxn analyzer operating instructions for complete instructions.

The recommended calibration/qualification sequence is:

1. Wavelength calibration (neon standard)
2. Intensity calibration/standardization (intensity standard)
3. Probe background standardization (probe BG)
4. Laser wavelength calibration (Raman shift standard)
5. Calibration qualification (Raman shift standard)
6. Periodic verification (verification)

4 Verification kit refill

A refill kit is available for the consumable items in the LNG analyzer performance verification kit. The kit is intended to be used for a total of three verification cycles.

Item	Endress+Hauser material number	Contents	Quantity
LNG analyzer verification kit refill	70207358	Moist towelette	3
		Pre-saturated single acetone wipe	3
		Acetone ampule, 1.5 mL	6
		Ampule breaker	6

Table 3. Refill kit

5 Repair

Repairs not described in this document must be carried out only directly at the manufacturer's site or by the service organization. For Technical Service, refer to our website (<https://endress.com/contact>) for the list of local sales channels in your area.

Manufacturer address

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

www.addresses.endress.com
