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Technical Information

Raman flow assembly calibration and verification kit

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People for Process Automation

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Function and system design

Raman flow assembly calibration and verification kit contents

The Raman flow assembly calibration and verification kit includes all the necessary hardware for calibrating and verifying the calibration of the micro flow bench optic.

Kit contents:

Hardware	Description
Micro flow bench calibration cell	Accessory used to calibrate the optic
Micro flow bench verification cell	Accessory used to verify the system performance to the calibration
Temperature display	Plugs into the micro flow bench calibration cell to provide device temperature reading
Flash drive with calibration files	Flash drive containing the necessary calibration files
Syringe	Used when the micro flow bench verification cell requires servicing
Syringe tips (2)	Used when the micro flow bench verification cell requires servicing
Lens cleaning wipes	Used for cleaning the optical surface of the micro flow bench calibration or verification cell

Micro flow bench calibration cell

The micro flow bench calibration cell is used for standardizing Raman instruments and analyzers to give precise spectral intensity measurements. When used with the recommended calibration protocol, the calibration cell ensures different instruments generate similar spectra when measuring a given sample. The micro flow bench calibration cell was created specifically for use with Raman instruments and analyzers manufactured by Endress+Hauser.

The micro flow bench calibration cell contains a calibration reference standard (CRS) housed in a robust cell, and interfaces to the micro flow bench in the same fashion as the standard micro flow cell.

Micro flow bench verification cell

The micro flow bench verification cell is used to verify the calibration results using a standard reference sample. The verification sample initially provided and required for use with the multi optic verification accessory is 70 % isopropyl alcohol (IPA).

The micro flow bench verification cell was created specifically for use with Raman instruments and analyzers manufactured by Endress+Hauser and interfaces to the micro flow bench in the same fashion as the standard micro flow cell.

Temperature display

A temperature display with the recommended precision and accuracy is provided with the kit and connects to the temperature measurement sensor contained within the micro flow bench calibration cell. The cell temperature is entered into the Raman RunTime software of the Raman analyzer during calibration. This requires a Raman analyzer with Raman RunTime 6.2.2+ embedded software.

Syringe and tips

A syringe with leur lock tips (2) is included in the kit for servicing the micro flow bench verification cell. Refer to the *Raman flow assembly calibration and verification kit Operating Instructions* for maintenance instructions.

Layout

The external and internal views of the Raman flow assembly calibration and verification kit are shown below.

Figure 1. External view of the Raman flow assembly calibration and verification kit

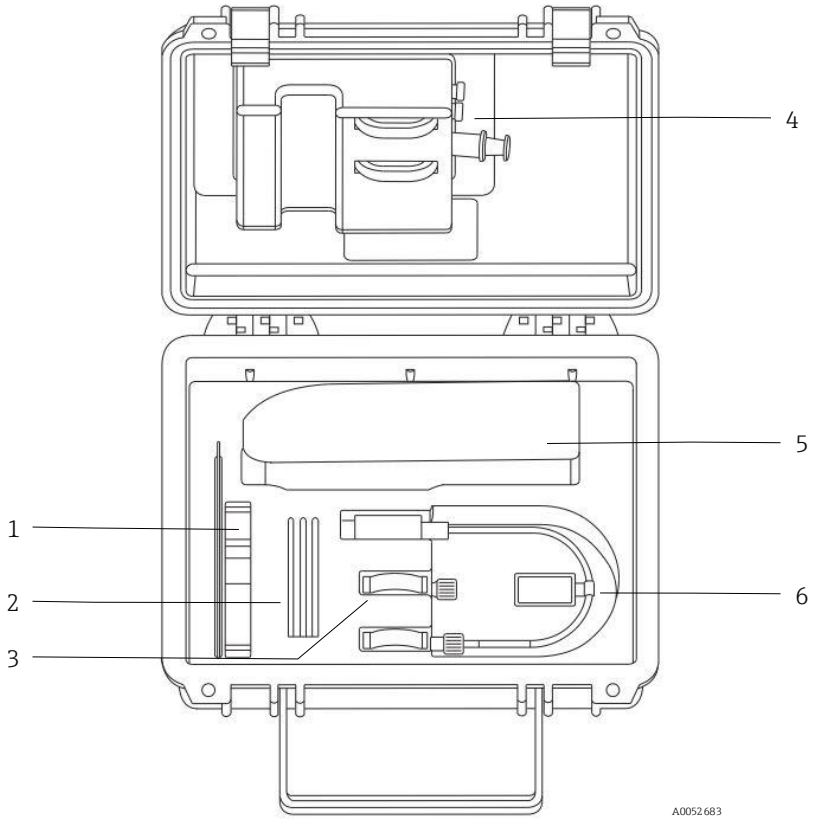

Figure 2. Internal view of the Raman flow assembly calibration and verification kit

#	Description
1	Flash drive
2	Lens wipes
3	Micro flow bench verification cell
4	Syringe and tips
5	Temperature display
6	Micro flow bench calibration cell and temperature sensor connector

Specifications

Dimensions: Raman flow assembly calibration and verification kit

The dimensions of the Raman flow assembly calibration and verification kit are shown below.

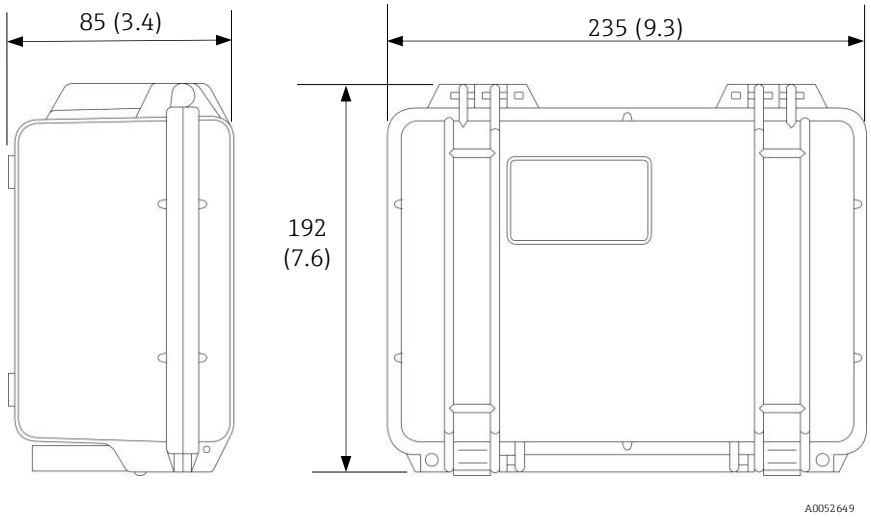

Figure 3. Raman flow assembly calibration and verification kit. Dimensions: mm (in)

Dimensions: micro flow bench calibration cell

The dimensions of the micro flow bench calibration cell are shown below.

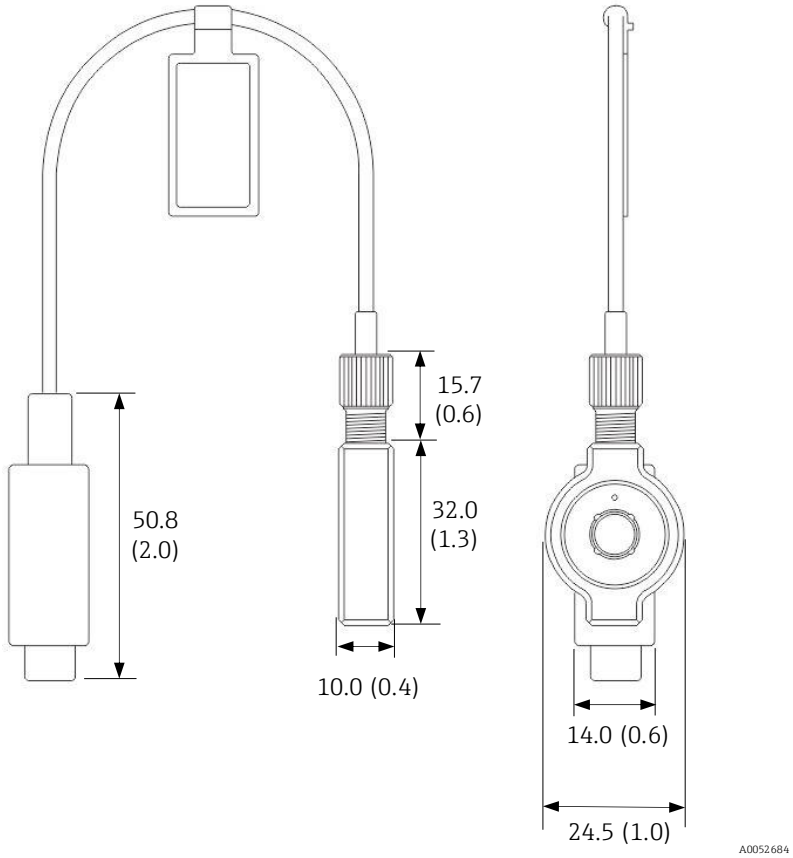

Figure 4. Micro flow bench calibration cell. Dimensions: mm (in)

Dimensions: micro flow bench verification cell

The dimensions of the micro flow bench verification cell are shown below.

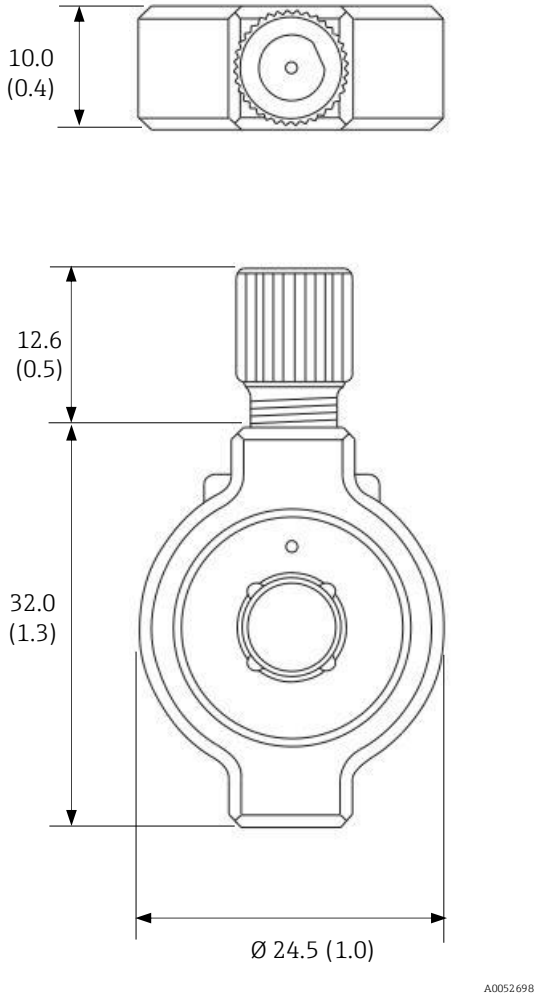

Figure 5. Micro flow bench verification cell. Dimensions: mm (in)

General specifications

Additional Raman flow assembly calibration and verification kit specifications are listed below.

Item	Description
Spectral intensity reference	calibration reference standard (CRS)
Data file spectral range	CRS-785: 790.7 to 1074.5 nm
Spectral intensity output	< ±2 %
Total long term spectral uncertainty (at any wavelength)	CRS-785: ± 6.05 %
Calibration kit weight	1.5 kg (3.3 lbs)
IP rating	IP20
Operating conditions	0 to 40 °C (32 to 104 °F) < 80 % humidity, non-condensing
Recommended storage conditions	–15 to 50 °C (5 to 122 °F) < 80 % humidity, non-condensing

Table 1. Specifications