Raman calibration and verification kits

Everything needed to calibrate and verify your Raman analyzer system for lab-to-process scalability



Typical Raman calibration and verification kits for the Raman flow assembly, the Rxn-46 probe, and the bio multi optic (and single-use optic)

Easy-to-use, modular Raman calibration and verification kits

Raman calibration and verification kits have everything needed to standardize your Raman system for lab-to-process scalability. Kits are available for the multi optic (and single-use optic) systems, the Raman flow assembly, and the Rxn-46 probe, with others to come. Requiring no external power, these tools boost efficiency and reduce downtime via easy field deployment. These kits consist of non-wetted parts so they can be used without affecting sterilization in benchtop or single-use bioreactors or fermenters.



Benefits at a glance

- Uses modular hardware to simplify Raman analyzer standardization and verification, contained in a convenient, all-inone kit
- Facilitates easy calibration transfer of chemometric models for smooth lab-to-process scalability
- Offers flexibility to calibrate anytime without impacting your process, which simplifies redundancy and mitigates risk
- Enables quick instrument calibration and verification with minimal warm up, reducing down time
- Requires no external power for easier deployment in the field

Accurate instrument standardization

In conjunction with the recommended calibration procedures, the calibration accessories in these kits allow different instruments to be quickly and easily standardized to generate consistently similar spectra when measuring a given sample. After connecting the multi optic or flow bench to the Rxn-10 probe, a calibration accessory (or cell) is used to perform an intensity calibration for the probe head with the optic. The kits also include a temperature sensor and display which connects to the calibration accessory (or cell) to take a temperature reading that is then entered into the analyzer's Raman RunTime software.

Convenient verification tools

Our specialized calibration kits also include a verification accessory (or cell) which is used to verify the calibration results using a standard reference sample of 70% isopropyl alcohol (IPA). Bundling both the calibration and verification components together in one case provides all-in-one convenience.

Scalability via seamless calibration model transfer

Used routinely, these calibration protocols also facilitate seamless calibration model transfer between laboratory instruments and on-line process analyzers. Raman chemometric model transferability is key to helping biopharmaceutical manufacturers realize the true efficiency benefits of lab-to process scalability.

Multi optic calibration and verification kit

The multi optic calibration and verification kit includes all the necessary hardware for calibrating and verifying the calibration of the bio multi optic (and Raman optic system for single use) connected to an Rxn-10 probe when paired with an Endress+Hauser Raman Rxn embedded analyzer.

Conveniently packaged within a durable case, each multi optic calibration and verification kit includes:

- A multi optic calibration accessory
- A multi optic verification accessory
- A temperature display that plugs into the calibration accessory (the temperature is entered into the analyzer software)
- A USB flash drive containing the necessary calibration files
- A calibration certificate
- A syringe used to refill the verification accessory if needed
- Two (2) syringe tips to refill the verification accessory if needed



An Rxn-10 probe with a 120 mm multi optic connected to a calibration accessory and a temperature display



An Rxn-10 probe with a 220 mm multi optic connected to a verification accessory

Raman flow assembly calibration and verification kit

The Raman flow assembly calibration and verification kit contains all the necessary hardware for calibrating and verifying the calibration of the flow bench when it is connected to an Rxn-10 probe, paired with a Raman Rxn embedded analyzer.

Conveniently packaged within a durable case, each Raman flow assembly calibration and verification kit includes:

- A stainless-steel micro flow bench calibration cell
- A stainless-steel micro flow bench verification cell
- A temperature display that plugs into the calibration cell (the temperature is entered into the analyzer software)
- A USB flash drive containing the necessary calibration files
- A calibration certificate
- A syringe used to refill the verification cell if needed
- Two (2) syringe tips to refill the verification cell if needed
- Three (3) lens cleaning wipes to clean the optical surfaces of the calibration and verification cells

Quick and easy calibration and verification

A similar comprehensive calibration and verification kit is also now available for the Rxn-46 probe which is compatible with the BioPAT[®] Spectro platform by Sartorius.



An Rxn-10 probe with a micro flow bench and a calibration cell connected to a temperature display



A verification cell being inserted into a micro flow bench connected to an Rxn-10 probe

Technical specifications*

	All Raman calibration and verification kit variants
Sampling probe compatibility	Rxn-10 probe
Laser wavelength	785 nm
Spectral intensity reference	Calibration reference standard (CRS)
Spectral intensity calibration range	CRS-785: 790.7 to 1074.5 nm
Spectral intensity output repeatability (at time of certification)	<±2 %
Total long term spectral uncertainty (at any wavelength)	±6.05 %
Operating conditions	0 to 40 °C (32 to 104 °F)
Recommended storage conditions	-15 to 50 °C (5 to 122 °F) <80 % humidity, non-condensing
IP rating	IP20
Kit dimensions (width x height x depth)	235 x 192 x 85 mm (9.3 x 7.6 x 3.4 in)
Kit weight	1.5 kg (3.3 lbs)

*For complete product specifications, please refer to the Technical Information (TI) manual for these products or go to <u>www.endress.com</u>.

www.addresses.endress.com