



Raman Integration to the Seg-Flow® S3 and Director

The RAMAN-IM, fitted with your preferred Raman platform, interfaces a single Raman probe to up to 8 reactors through the Seg-Flow Sampling System. Cell-containing and cell-free samples are automatically withdrawn from the reactors and delivered to the RAMAN-IM and up to 3 other analytical devices. This method provides the data you need to produce your Raman model with considerably less time and cost.

Raman spectroscopy is used in biomanufacturing as a process analytical technology (PAT) for monitoring analytes, such as glucose. Due to advancements in integrated technology for automating sampling, analysis, and data management, this technique, which is frequently used in larger scale bioreactors, is now being studied with small scale reactors for measuring analytes and producing Raman models for feedback control.

Raman models used for process control are dependent upon the development of calibration models that compare a spectral signal with an analyte or other measurement parameter. This requires the measurement of multiple analytes, ideally using a design of experiments (DoE) approach in order to encounter as many process variations as possible through design. Raman modeling can be time-consuming, taking many bioprocess runs within one study to provide hundreds of required data points. It can also be costly when media, reagents, and staff needs are considered.

Once your Raman model is produced, you can still use the RAMAN-IM (fitted with your preferred Raman platform) to control feed into your reactors. This will provide a considerable savings since one Raman probe is used for up to 8 reactors.



Economical Solution

Only 1 Raman probe for up to 8 reactors



Saves Time

Modeling achieved in far fewer bioprocess runs



Reduces Costs

Requires less media and resources



Direct Correlation

Process conditions measured simultaneously w/Raman Spectra

Configuration Example

