

Bioprocessing infrastructure readiness for inline analytical instrument integration

Is your upstream operation ready for seamless deployment of an inline Raman spectroscopy system?

Before deploying an inline analytical monitoring system on an upstream production line, several technical considerations should be addressed. This questionnaire helps you assess, in five minutes, the maturity of your infrastructure and identify areas that may require additional attention.

Checklist	Yes	No
Does your bioreactor have an available access port for installing an analytical probe, or are all ports already in use?	☐	☐
Can your control system (DCS, SCADA, or equivalent) easily integrate new instruments through a standard communication protocol such as OPC UA?	☐	☐
If you use single-use bioreactors, does your current setup support integration of pre-sterilized analytical sensors or probe assemblies?	☐	☐
In the event of an analytical instrument failure during a run, do you have a continuity procedure in place that allows you to maintain process control without compromising the culture?	☐	☐
Does your maintenance team have experience maintaining inline analytical instruments?	☐	☐
Do your operators have access to real-time analytical data within their normal operating environment?	☐	☐
Are data from your current analytical instruments automatically recorded in your control system?	☐	☐
Do your bioreactor areas have environmental or accessibility constraints that would require special consideration for inline analytical probe installation?	☐	☐
If you added a new analytical measurement point tomorrow, would the operators readily see and use the data within your control system?	☐	☐
Have you evaluated the hidden costs associated with an inline analytical instrument, including bioreactor adapters, single-use consumables, and preventive maintenance, in addition to the instrument purchase price?	☐	☐
Can you identify specific opportunities where real-time, inline Raman measurements could improve your bioreactor monitoring or feed strategy?	☐	☐

How to interpret your score

8–10 Yes answers – Your infrastructure is mature. Deploying a Raman spectroscopy system is likely to be quick and straightforward, with minimal technical challenges. Let's discuss your specific configuration.

5–7 Yes answers – A few areas require consideration. A 30-minute technical discussion would help identify them and estimate deployment effort more accurately.

0–4 Yes answers – Deployment will require a more structured implementation approach. It is absolutely achievable, but understanding the requirements upfront will help ensure proper planning and execution.

Discuss your configuration with an Endress+Hauser application engineer.

Contact us today