

Critical considerations when selecting an eddy covariance analyzer:



LI-7500A
Open Path
CO₂/H₂O
Analyzer

LI-7200
Enclosed
CO₂/H₂O
Analyzer

The LI-7500A and LI-7200 gas analyzers each present unique advantages. If you don't know which to choose, answer the following questions about your research site and objectives to determine which analyzer is best for your needs. Contact LI-COR if you have additional questions at 402-467-3576 or envsales@licor.com.

Is water vapor (latent heat) flux the primary focus of your research?

Yes: The LI-7500A provides better water vapor (latent heat) flux measurements because the open sampling path eliminates tube attenuation of water vapor. The LI-7200 will provide good measurements of water vapor with the proper configuration, which includes a short intake tube.

No: If water vapor flux is of general interest but not the focus of your measurements, either the LI-7500A or LI-7200 will perform well.

Is the annual carbon budget the primary focus of your research?

Yes: The LI-7200 typically provides more data coverage than the LI-7500A because it is not significantly affected by precipitation and condensation events. The LI-7500A will provide good measurements of CO₂ flux, but may lose data during precipitation and condensation.

No: Both the LI-7500A and LI-7200 will provide excellent measurements of CO₂ flux, but larger data gaps may occur when using the LI-7500A in areas with frequent precipitation.

Does your site regularly have very low CO₂ fluxes and/or high heat fluxes?

Yes: When CO₂ fluxes are near zero, flux measured with the LI-7200 will have less uncertainty because the calculations do not need the Webb, Pearman, and Leuning (WPL) corrections if the flux is calculated using dry mole fraction output.

No: The LI-7500A will provide excellent measurements of CO₂ flux. However, if highly accurate near-zero CO₂ flux measurements are your primary concern, the LI-7200 is recommended.

Is dust accumulation a significant concern for your study environment?

Yes: The LI-7500A is recommended in dusty environments because rainfall and wind will clear dust off of the gas analyzer windows. The LI-7200 will perform well with a particulate filter, but under this configuration it may require a larger power supply. The LI-7200 can also be used without a filter but it will require more frequent field cleaning.

No: If dust is not an issue at your site, either the LI-7500A or LI-7200 will work well.



Does your study environment have frequent rain, fog, snow, or condensation during the measurement season?

Yes: In general, the LI-7200 will provide more consistent measurements during rain, snow, fog, and condensation because it has a closed sample path. On the other hand, rainfall will wash dust off of the LI-7500A lenses, which will reduce the need to clean the optical lenses manually.

No: If your site does not experience frequent rain, snow, fog, or condensing conditions, both the LI-7500A and LI-7200 will work well.



Do you intend to measure flux in cold conditions (daily high temperatures near freezing)?

Yes: The LI-7200 is preferred for flux measurements in extremely cold conditions. The sensor measures temperature and pressure in the optical path so there is no need for instrument-related heat dissipation corrections. The LI-7500A provides a setting for low temperature operation, which reduces power consumption in cold environments and limits heat dissipation from the instrument.

No: Both the LI-7200 and LI-7500A work well in typical outdoor weather conditions. For extreme cold, the LI-7200 is recommended. Both instruments can be validated to -40 °C for extremely cold environments.



Is power a limiting factor at your site?

Yes: The LI-7500A typically requires 12 watts of power, whereas the LI-7200 and flow module combined require approximately 28 watts. While both can be powered from a solar power supply in most locations, the LI-7500A is recommended if you have a limited power supply available.

No: Both the LI-7200 and LI-7500A can be powered from a solar power supply or AC grid power, but the LI-7500A is preferred if power is a limitation at your site.



Is access to your site limited?

Yes: Both the LI-7500A and LI-7200 are designed for low-maintenance operation and long-term deployment, but under most configurations, the LI-7500A typically requires less maintenance than the LI-7200. Therefore, the LI-7500A is recommended if site access is very limited.

No: Both the LI-7500A and LI-7200 are designed for long-term field deployment. Either instrument will perform well if you can access the site regularly to check the instruments.

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