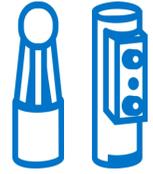


# Critical considerations when selecting an eddy covariance analyzer:



LI-7500RS • LI-7200RS

*Should I choose the open path or the enclosed gas analyzer?*

The LI-7500RS Open Path CO<sub>2</sub>/H<sub>2</sub>O Analyzer and the LI-7200RS Enclosed CO<sub>2</sub>/H<sub>2</sub>O Analyzer 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: +1-402-467-3576 or [envsales@licor.com](mailto:envsales@licor.com).

**Is water vapor flux (evapotranspiration) the primary focus of your research?**

**Yes:** The LI-7500RS offers smaller uncertainty for water vapor flux measurements because the open sampling path eliminates the need for a correction for tube attenuation of water vapor. The LI-7200RS will provide good measurements of water vapor with the proper configuration, which includes a short heated intake tube.

**No:** If water vapor flux is not the main focus of your measurements, either the LI-7500RS or LI-7200RS will be a good choice.

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

**Yes:** The LI-7200RS typically provides more data coverage than the LI-7500RS because it is not significantly affected by precipitation and condensation events. The LI-7500RS will provide good measurements of CO<sub>2</sub> flux, but may lose data during precipitation and condensation.

**No:** Both the LI-7500RS and LI-7200RS will provide excellent measurements of CO<sub>2</sub> flux, but larger data gaps may occur when using the LI-7500RS in areas with frequent precipitation.

**Does your site regularly have very low CO<sub>2</sub> fluxes and/or high heat fluxes?**

**Yes:** When CO<sub>2</sub> fluxes are near zero, flux measured with the LI-7200RS will have less uncertainty because the calculations do not need the Webb, Pearman, and Leuning (WPL) density corrections if the flux is calculated using dry mole fraction output.

**No:** The LI-7500RS will provide excellent measurements of CO<sub>2</sub> flux. However, if highly accurate near-zero CO<sub>2</sub> flux measurements are your primary concern, the LI-7200RS is recommended.

**Is dust accumulation a significant concern for your study environment?**

**Yes:** The LI-7500RS is recommended in dusty environments because rainfall and wind will clear dust off of the gas analyzer windows. The LI-7200RS will perform well with a particulate filter, but under this configuration it may require a larger power supply. The LI-7200RS 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-7500RS or LI-7200RS will work well.

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

**Yes:** In general, the LI-7200RS will provide more consistent measurements during rain, snow, fog, and condensation because it has a closed sample path.

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

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

**Yes:** The LI-7200RS 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-7500RS provides a setting for low temperature operation which reduces power consumption in cold environments and limits heat dissipation.

**No:** Both the LI-7200RS and LI-7500RS work well in typical outdoor weather conditions. For extreme cold, the LI-7200RS is recommended. Both instruments can be validated to -40 °C for extremely cold environments, but have been known to be used in much colder temperatures when winterized.

## Is power a limiting factor at your site?

**Yes:** The LI-7500RS (typically 12 watts required) is recommended if you have a limited power supply. In most locations, both analyzers can be powered from a solar power supply. The LI-7200RS and flow module combined require approximately 28 watts.

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

## Is access to your site limited?

**Yes:** Both the LI-7500RS and LI-7200RS are designed for low-maintenance operation and long-term deployment. But under most configurations, the LI-7500RS typically requires less maintenance. Wireless communication and web-based FluxSuite™ Software allow you to monitor sites and download fully processed fluxes, reducing the frequency of site visits.

**No:** Both the LI-7500RS and LI-7200RS 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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### LI-COR Biosciences - Global Headquarters

4647 Superior Street  
Lincoln, Nebraska 68504  
Phone: +1-402-467-3576  
Toll free (USA and Canada): 800-447-3576  
Fax: +1-402-467-2819  
envsales@licor.com • envsupport@licor.com • www.licor.com/env

### Regional Offices

#### LI-COR GmbH, Germany

*Serving Andorra, Albania, Cyprus, Estonia, Germany, Iceland, Latvia, Lithuania, Liechtenstein, Malta, Moldova, Monaco, San Marino, Ukraine, and Vatican City.*  
LI-COR Biosciences GmbH  
Siemensstraße 25A  
61352 Bad Homburg, Germany  
Phone: +49 (0) 6172 17 17 771  
Fax: +49 (0) 6172 17 17 799  
envsales-gmbh@licor.com • envsupport-gmbh@licor.com

#### LI-COR Ltd., United Kingdom

*Serving Denmark, Finland, Ireland, Norway, Sweden, and UK.*  
LI-COR Biosciences UK Ltd.  
St. John's Innovation Centre  
Cowley Road  
Cambridge  
CB4 0WS  
United Kingdom  
Phone: +44 (0) 1223 422102  
Fax: +44 (0) 1223 422105  
envsales-UK@licor.com • envsupport-UK@licor.com

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