

PTM-48M Photosynthesis Monitor

The new LC-4W Leaf Chamber

The LC-4W Leaf Chamber was designed for narrow and long leaves, which are typical for wheat, rice, yam, corn plants, and some other herbs. Windows of the LC-4W chamber are of rectangular shape with the 13 x 77 mm² dimensions. The total area of the window is 10 sq. cm or 0.1 sq. dm. The standard rounded LC-4B Leaf Chamber has windows with 20 sq. cm area, or 0.1 sq. dm.

The LC-4W Leaf Chamber operates same way as the LC-4B leaf chamber. The only difference is the air flow rate through the chamber, which is about 0.45 LPM for the LC-4W, and about 0.9 LPM for the LC-4B. If the customer orders a complete set of four LC-4W Chambers, the proper air flow rate is set at the factory. However, if the customer expects to use a combination of LC-4W and LC-4B chambers, a special air flow valve is supplied, which is inserted in-line with the LC-4W hose. That valve provides necessary reduction of the standard air flow rate.

Open and closed positions of the LC-4W Leaf Chamber are shown in the photos below:



The LC-4W Leaf Chamber has a special plate for mounting optional Quantum sensor for measuring Photosynthetic Photon Flux (PPF) in $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$, if necessary.

There is also an opaque version of that chamber named as LC-4WD. That chamber, if paired with the standard LC-4W Chamber, allows partitioning of the CO₂ exchange, i.e. evaluation of photorespiration, dark respiration, gross-, and net photosynthesis. Please refer to www.phyto-sensor.com for details about this technique.

Some photos of the LC-4WD Leaf Chamber and the paired Chambers are shown below:



PTM-48A Photosynthesis Monitor

Connection of the LC-4W Leaf Chamber

Connection procedure may be a little bit different when using all leaf chambers of the same model or a combination of two or more different models.

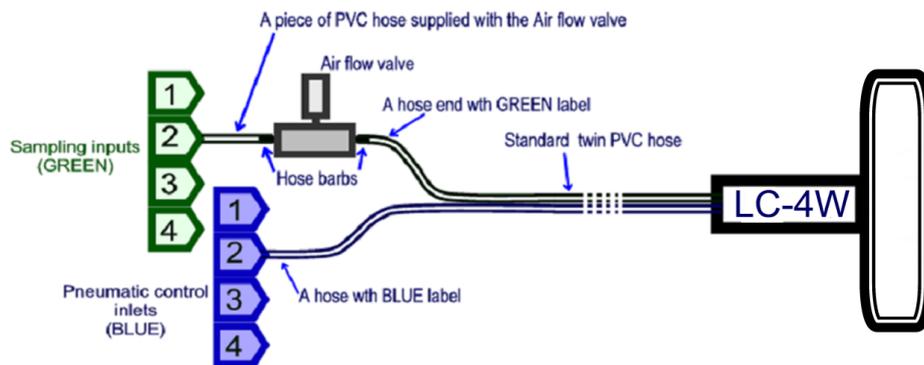


Option A. Only LC-4W chambers are used in a project.

1. Connect the LC-4W chambers to the PTM-48A as described on Page 6 of the PTM-48A User's Guide.
2. Turn the PTM-48A to manual mode (Page 8).
3. Switch the pump on.
4. Adjust the air flow rate to 0.45 ± 0.05 LPM by using the air flow control located at the front panel of the PTM-48A system console (Page 5).

Option B. A combination of LC-4B and LC-4W leaf chambers is used in the project.

1. Connect the LC-4B chambers as described on Page 6 of the User's Guide.
2. Connect the LC-4W chambers through the air flow valves as shown in the picture below. The air flow valve is enclosed with every LC-4W chamber.



3. Turn the PTM-48A on in manual mode (Page 8) and switch the pump on.
4. Select any LC-4B Leaf chamber by using Channel selector on Control Panel (Page 5).
5. Adjust the air flow rate to 0.9 ± 0.05 LPM by using the air flow control located at the front panel of the PTM-48A system console (Page 5).
6. Select any LC-4W chamber by using Channel selector.
7. Adjust the air flow rate to 0.45 ± 0.05 LPM by using the appropriate air flow valve.
8. Repeat operations 6 and 7 for every LC-4W chamber included into the project.
9. When making a project descriptor, enter the model of every chamber in the leaf chamber panel as shown in the example below:

#	Leaf Chamber	Cover	Notes
1	LC-4B Standard Mode	1.00	
2	LC-4B Standard Mode	1.00	
3	LC-4W Standard Mode	1.00	
4	LC-4W Standard Mode	1.00	