



***Bio Instruments S.R.L.***

SENSORS AND SYSTEMS  
FOR MONITORING GROWING PLANTS

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## **LT-LC**

*Leaf Temperature Sensor  
for the LC-4B Leaf  
Chamber*



## **Introduction**

The LT-LC sensor is a subminiature touch probe that measures absolute temperature of a leaf inside the LC-4B Leaf Chamber of the PTM-48A Photosynthesis Monitor. The sensor serves to determine stomatal conductance of the leaf. The lightweight stainless steel wire clip holds a high precision glass encapsulated thermistor, which is about a millimeter in diameter. Small size of the probe and its special design provide almost negligible disturbance of the natural leaf temperature.



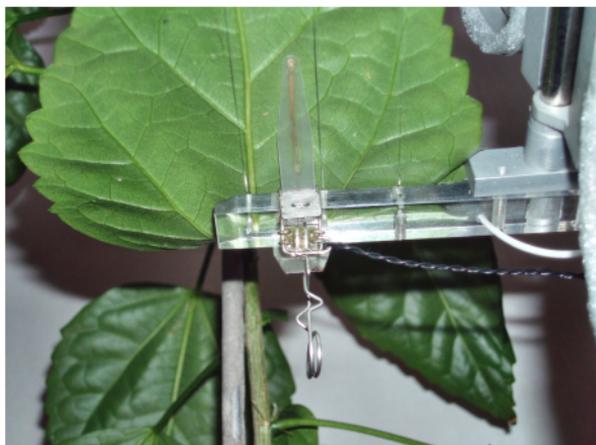
The probe is connected by a standard 1-meter cable to the waterproof box with the signal conditioner inside. Standard cable length between signal conditioner and monitor is 4 meters. Every sensor is tuned and calibrated within the measurement range. The tolerance range is  $\pm 0.08$  °C only.

## ***Installation***

1. Place and fix the leaf in the Leaf Chamber as shown in the photo below.



2. Mount the LT-LC sensor on a lower part of a plastic clip between the first and second clamping threads. You may use any of the paired clips.



Thermistor should be placed at the lower side of the leaf.

3. Run the LT-LC sensor's cable so that it would not be between flaps when chamber is closed.
4. Close the Leaf Chamber flaps to make sure that the LT-LC sensor does not impede operation of the chamber.



## Connection

Plug the sensor into any analog input of the PTM-48A Photosynthesis Monitor. In the PC program, specify the input number where the sensor is connected to.

If you use the sensor for the first time, please make the appropriate record in the Sensors Database as described in the PTM-48A Photosynthesis Monitor User's Guide.

Sensor data

Type: LT-LC

ID: #xxxx

Description: Leaf Temperature

Units: C

Format: ##

Measurement mode: Normal

Measurement ranges

Minimum: 0.0 C

Maximum: 50.0 C

Max Volts: 2.5 V

Coefficients

Standard

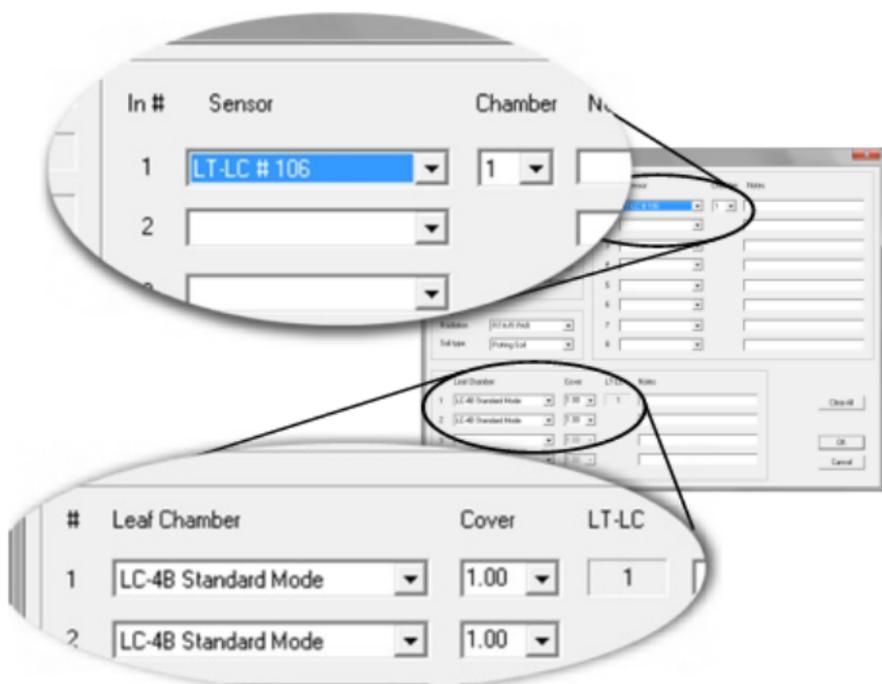
#	Coefficient
C0	-9.90000e-003
C1	2.65420e+001
C2	-4.50480e+000
C3	1.86490e+000
C4	0.00000e+000
C5	0.00000e+000

Edit

Defaults

*Sensors Database Window in PTM-48A*

Select the input number of the Leaf Chamber where the LT-LC sensor is mounted in the Chamber field of the Project descriptor window. The appropriate number appears in the Leaf Chamber section under LT-LC header.



*Project descriptor Window in PTM-48A*

## ***Specifications***

Measurement range	0 to 50 °C
Instrumental accuracy	< 0.15 °C
Probe dimensions, mm	65 W × 12 H × 35 D
Probe weight	1.6 g
Contact area of thermistor	About 1 mm <sup>2</sup>
Protection index	IP 64
Tolerance range	±0.08 °C
Cable length between probe and signal conditioner	1 m
Output cable length	4 m



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