

# LED irradiation unit LC-450EXP

This is an option to update TAITEC's incubator shakers, etc. to irradiation incubators. Can be installed on medium to large Bioshakers and shakers, as well as constant temperature chambers.

- Middle and Large sized Bioshaker series --> P.028-035
- Large sized Shaker "NR-150N Series" --> P.078
- Constant temperature chamber "iB-130/230, M-210/600FD" --> P.154-156

## Features

- Wave light equivalent to general LED fluorescent lamps
- Low light level by the irradiation from the bottom resulted in little irradiation difference
- Controller sold separately, 1 ch only and 1-4 ch same irradiation

## Applications

- Cultivation of Cyanobacteria and Algae
- Culture of Plant callus
- Plant cell passaging culture

### Combined with Middle to Large sized BR series, Shakers and Constant temperature chamber

Optimum for using with the Medium to Large sized Constant temperature incubator shaker BR series, Shaker NR series, and Constant temperature chamber iB/M series. The irradiation from the bottom can be done. See P.032 for installation on Large sized BR, P.078 for Large sized NR, and P.154 to 156 for constant temperature chamber. For BR-41-43/53 series and constant temperature chambers, irradiation from the top of the chamber is also possible by using optional mounting brackets.

### Option

Combination example ①: Irradiation from the bottom with Medium sized BR LC-450EXP  
+ Controller LC-LED-CON1  
+ Shaking platform MR-4030  
+ Transparent Sticky sheet for LC-LED



Basic system of CO<sub>2</sub>-BR-43FL for cultivation of Algae combined with CO<sub>2</sub>-BR.

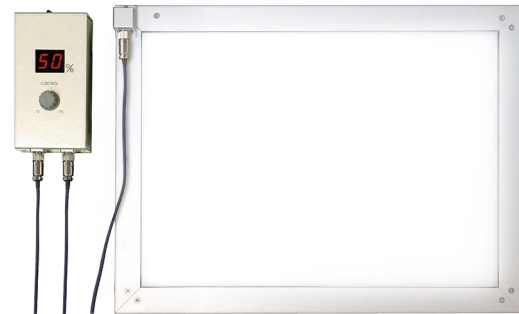
Combination example ②: Irradiation from the top with a Medium sized BR LC-450EXP  
+ Controller LC-LED-CON1  
+ Mounting bracket RSB-3424LED



Combination example ③: Irradiation from the bottom with Large sized BR (see the P.032 for details)  
LC-450EXP x1 to 4 pcs  
+ Controller LC-LED-CON4  
+ Mounting bracket LC-0950BR x1 to 4 pcs  
+ Shaking platform MR-4030 x1 to 4 pcs  
+ Transparent Sticky sheet for LC-LED x1 to 4

Combination example ④: Irradiation from the bottom/top with Medium-sized constant-temperature chamber M-210FD (see P.155 for details)  
LC-450EXP + Controller LC-LED-CON1 + Mounting bracket LC-1250SB

Product Name / Model	Remarks
<b>Spring net shaking platform MR-4030</b>	Remove the bottom plate and fix the LC-LED plate with screws. See P.038 for vessels capacity/qty.
<b>Transparent Sticky sheet for LC-LED</b>	Transparent Sticky sheet for protecting LC-LED plate and holding flat bottom vessels. It can be used up to 100 r/min.
<b>Mounting bracket for LED top irradiation RSB-3424LED</b>	Brackets for mounting on the top surface of the BR-41/42/43/53 series chamber. Height can be adjusted to 4 levels.
<b>LED light illumination unit mounting bracket LC-0950BR</b>	Brackets for mounting to the Universal shaking platform MT-6040/7050/8060 for Large sized BR. One set of these brackets is required for each LED unit.
<b>LED light illumination unit mounting bracket LC-1250SB</b>	Brackets for mounting to the shelf of the iB and M series constant temperature chamber. One LED unit can be fixed to one shelf.



Example of combination with optional controller LC-LED-CON1 (photo shows when lit)



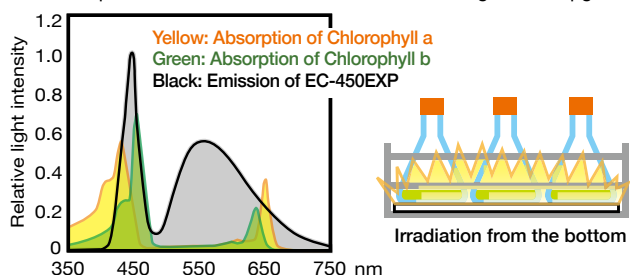
Installation of 4 pcs of LED units into the chamber of the Large sized Bioshaker



Optional controller LC-LED-CON4 that enables irradiation of up to 4 pcs with the same output

### Optimum as a substitute for white fluorescent light as an upgrade

It contains 450 nm which is the main absorption wavelength of chlorophyll as the primary peak and also contains the required intensity around 660 to 740 nm. Optimum as a substitute for white fluorescent light as an upgrade.



### Significantly higher illuminance (photon intensity) than conventional models, dimmable in 1% increments

The photon flux density has been increased from approximately 215  $\mu\text{mol}$  in the previous model (LC-LED450W) to approximately 310  $\mu\text{mol}$  in this model. Light intensity can be controlled in 1% increments within the range of 10 to 100% with a dedicated controller (sold separately).

Model	LC-450EXP
LED	LED Color: White, Peak wavelength: 450 nm Photon flux density: approx. 310 $\mu\text{mol}$ (*1), Irradiated surface average: $\pm 15\%$
Dimensions of LED light source	340 x 240 mm
Use conditions	Temperature range: +4 to +50°C (*2), Shaking speed: Up to 200 r/min
Weight	Approx. 2.5 kg
Power supply	Depends on the dedicated controller (sold separately). *Compatible with the controllers of older models. (A compatibility cable may be required.)

(\*1) The photon flux density values are those on the luminous surface. There may be slight individual differences among the irradiation units. Please be aware of this. (\*2) Due to the heat generated by the unit, the temperature display of each device may deviate from the actual temperature. When using the product, be sure to measure the actual temperature at the temperature illuminance to be used, and if there seems to be a discrepancy, please offset the temperature.

Dedicated controller model	LC-LED-CON1	LC-LED-CON4
Dimming method, controllable range	PWM method, control in 1% increments, 10 to 100% (*)	
Number of controllable LED irradiation units	Control the amount of light in one piece. For use with Medium sized BR.	Controllable 1 to 4 pcs simultaneously, at the same output (%) For Large sized BR.
Weight	Main unit approx. 0.2 kg, AC adapter approx. 0.2 kg	Main unit approx. 0.7 kg, AC adapter approx. 1 kg
Power supply	AC100V-240V/2A (AC Adapter)	AC100V-240V/5A (AC Adapter)

(\*) Settings can be made in the range of 0 to 100%, but reproducibility is poor below 10% due to individual differences in irradiation units.

NEW

Constant temperature incubator shaker OD Monitor

For cell culture related products

Shaker

Mixer Rotator Stirrer

Bead beater homogenizer Ultrasonic homogenizer

Aluminum block Bath Mini-size Bath

Water bath Shaking Water bath Immersion cooler

Hybridization Incubator Constant temperature Chambers

Centrifugal Concentrators Cold Trap

Freeze dryers

Substrate Electrophoresis apparatus Blotting device for hybridization

Constant-temperature water-circulating system [Chilled]

Appendix