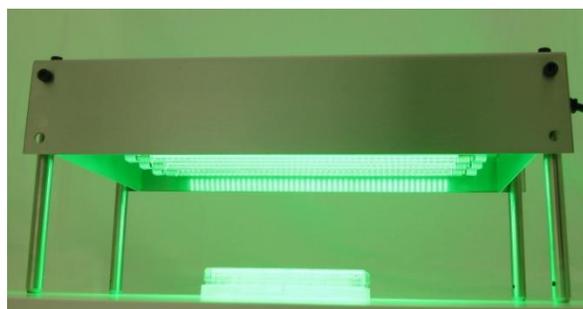


## Luzchem LED Exposure Panels EXPO-LED

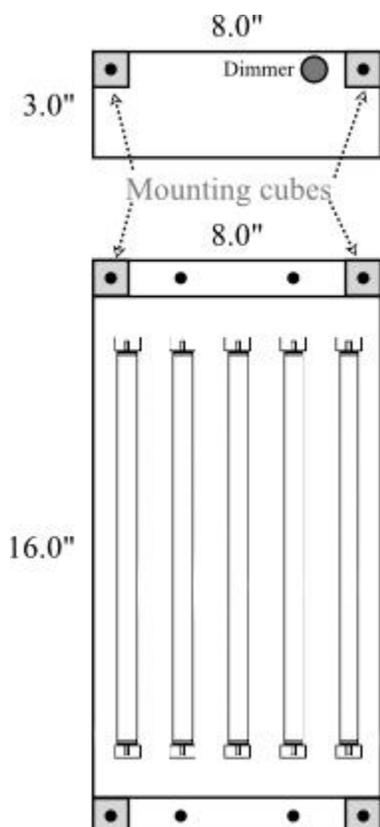
Luzchem's LED exposure panels, EXPO-LED, are a cost effective and flexible solution for narrow and broadband irradiation, specially designed for customers whose requirements are not met by Luzchem's wide range of photoreactors. These LED building blocks offer a new dimension in narrow and broadband visible exposure tools. One set of safety goggles is supplied with each panel. A variety of accessories and hardware packages are available.



EXPO-LED panel shown here with four 6" posts (included) and LED-GR lamps (sold separately)

### Configuration:

The EXPO-LED houses five 4-Watt LED tube-style lamps, each comprising 48 LEDs (lamps sold separately). The lamps are controlled by a power switch and dimmer. Each EXPO panel can be mounted on posts (various lengths sold separately) for top irradiation, on its side for side irradiation, or combined with additional panels or hardware (sold separately) to form a variety of configurations.



### Unit Specifications:

<b>Dimensions:</b>	<i>External:</i> 8x16x3 inches (w.l.t) (20x40x8 cm) <i>Emissive area:</i> approximately 7" x 12"
<b>Weight:</b>	6.5 lbs. / 3 kg
<b>Power Rating:</b>	110/220 VAC, 50/60 Hz cycle, 1 Amp
<b>Housing Material:</b>	<i>External:</i> Stainless Steel <i>Internal (behind lamps):</i> Reflective Aluminum Alloy
<b>Ambient Temperature:</b>	Must be between 10 °C and 35 °C
<b>Panel Temperature:</b>	Panel has safety shut-off which will cut power if temperature exceeds 60 °C
<b>Humidity:</b>	Must be between 0% and 95% (non-condensing)

## Options Included:

Option	Specifications
ON/OFF switch	<ul style="list-style-type: none"><li>• A single toggle switch controls all 5 lamps</li><li>• Single 1-Amp fuse</li></ul>
Dimmer Control	<ul style="list-style-type: none"><li>• All EXPO-LED Panels come with a Pulse Width Modulated dimmer switch to vary LED power and intensity.</li></ul>
Protecting Goggles	<ul style="list-style-type: none"><li>• Amber Safety Goggles.</li></ul>
Building cubes	<ul style="list-style-type: none"><li>• Four cubes with ¼"-20 tapped holes are included, allowing easy installation of posts (sold separately) or connection of multiple panels for various panel configurations.</li></ul>
Posts	<ul style="list-style-type: none"><li>• Four 6" long posts, ½" diameter are included with each panel.*</li></ul>

\*(Extra stable posts, various lengths and other hardware are available for purchase separately.)

## Lamps:

EXPO-LED lamps are 4-Watt lamp tubes, 12 inches long with T-5 connectors. Each easy-to-install lamp tube houses 48 LEDs. Below are tables of the LED lamps available from Luzchem. See separate sheets for the complete lamp exposure standards.

Lamps and accessories for the EXPO-LED are sold separately. Various packages combining lamps and hardware are available.

## Monochromatic LED Lamps:

Part #	Description	$\lambda$ Max * (nm)	FWHM (nm)	Irradiance** (W/m <sup>2</sup> )
LED-BL	Blue	463	22	62
LED-GR	Green	521	34	29
LED-AM	Amber	598	17	9.4
LED-RD	Red	634	19	21

\*Measured after recommended warm up time, +/- 2 nm.

\*\*Measured 10cm from the lamps with dimmer at Max power.

## Broadband LED Lamps:

Part #	Description	Colour Temperature, Nominal (K)	Irradiance** (W/m <sup>2</sup> )
LED-PW	Pure white	5500-6500	52
LED-NW	Nature white	4000-4500	55
LED-WW	Warm white	3000-3500	57

\*\*Measured 10cm from the lamps with dimmer at Max power.

**NOTE:** EXPO-LED panels are designed for use with Luzchem's LED- line of lamps and are **NOT** compatible with 8-Watt fluorescent (LZC- line) photoreactor lamps also available from Luzchem.

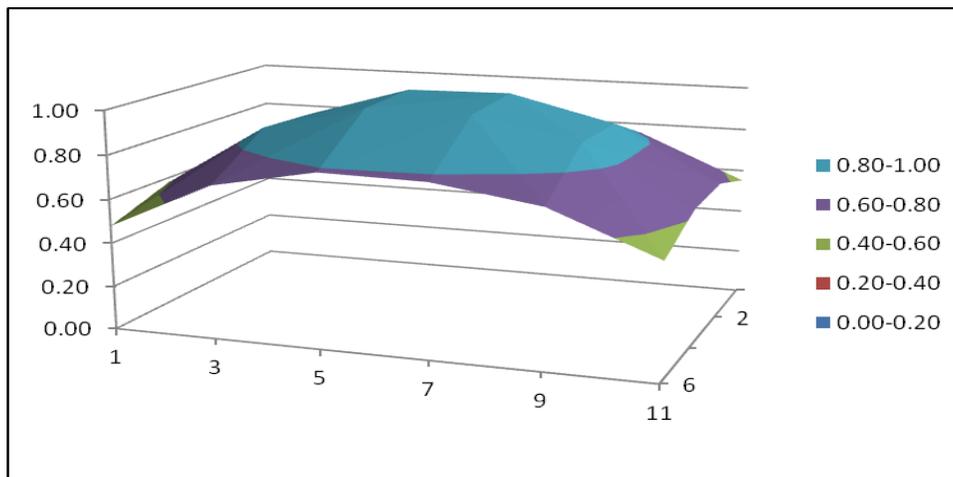
### Variable Power:

Luzchem's EXPO-LED panels offer variable control using a manual dimmer switch.

Dimmer position				
Description	Maximum power	Medium power	Low Power	Off
Relative power %	100	50-65	10-25	0

### Distribution of light under the Expo panel:

Luzchem's EXPO-LED panels offer a large irradiation area (approximately 7x12 inches) with a central region of approximately 4x8 inches in which variations are within +/-10%. (measured 10 cm from the lamps)

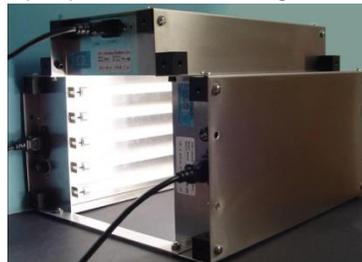


### Homogeneity:

Better than 10% over a well plate surface.

### Flexibility:

EXPO panels allow virtually infinite design flexibility, whether you need only one panel to irradiate biological samples in Petri dishes, or multiple panels to expose a conveyor belt or transform an incubator into a photoreactor. Each EXPO panel has one building cube in each of its four corners, with 1/4"-20 threads. In addition, several mounting holes allow installation under counters, and easy interconnection of multiple panels in various geometries.



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## Accessories

- Luzchem offers external shut down digital timers (LZC-TIM-E) designed to optimize exposure control, as well as interconnection kits.
- Four 6-inch long, half-inch diameter posts are standard with each panel, but 8", 10" and 12" lengths are also available.
- Extra-stable one-inch diameter posts are also available in a variety of lengths.
- Many photoreactor tools can be used with EXPO panels, including:
  - Power meters with conversion tables,
  - Spectroradiometers,
  - Portable sample carousels (Merry-go-rounds),
  - Portable turntables
  - Portable magnetic stirrers
  - Well-plate stirrer
- A base reflector is available which increases energy delivered to well plates by as much as 40%.
- A variety of EXPO-LED packages which combine lamps and accessories at a significant savings are also available.

## Applications:

Applications include organic photochemistry, photobiology, photodegradation, photostability, photocatalysis, contact imaging, accelerated aging, and many others.

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