

*Shining a new light on an old problem!*

# OPBM SERIES

Light Sources Optimized for Photobiomodulation Research

Photobiomodulation (PBM) is the term used to describe the biological actions of light on cell physiology.

PBM research on many life forms, from eukaryotes to mammals, has been growing for 30 years. There's been a lot of recent progress in phototherapy, yet there's still a lot of important questions remaining to be answered to unravel the splendid power of light

on physiological processes of life, both at cellular and system level.

To answer those questions, applied scientists need quality light sources to assert the relative effect of different wavelengths with homogeneous and controlled performance to facilitate their study on life sciences. There are often substantial resources, both material and human, required to prepare quality light source for experiments.

## OPBM product series: the answer to a thirty-year quest for optimal light source for research in phototherapy!

Claire Lasers is supporting life science research on applications of PBM by providing an optimal light source product.

The OPBM Series are precision tools for scientific investigation at numerous number of possible wavelengths.

TABLE OF OPBM-XXX-YY light sources optimized at specific wavelengths for research in PBM

Part-Number	Wavelength (nm)	Bandwidth (nm)	Maximum Intensity (mW/cm <sup>2</sup> )	Maximum Spectral Irradiance (mW/cm <sup>2</sup> - nm)
OPBM-455-30	455	18	30	1.7
OPBM-470-40	470	20	40	2.3
OPBM-525-25	525	35	25	0.7
OPBM-590-25	590	30	25	0.9
OPBM-617-25	617	20	25	1.4
OPBM-325-25	625	20	25	1.3
OPBM-630-25	630	20	25	1.4
OPBM-640-30	640	20	30	1.6
OPBM-660-35	660	25	35	1.5
OPBM-730-30	730	30	30	1.2
OPBM-850-30	850	30	30	1.2

Before the OPBM Series, life science researchers had to contend with different form factors for the light source. They had to produce experimental light beam with stable temporal and spatial characteristics, to provide control and calibrate the optical power, intensity, energy and fluence, prior to starting an experiment. Comparison between wavelengths has been a difficult and onerous task.

With the inception of the OPBM Series of advanced light sources, control of optical power, intensity, and

dose is easy, and studies on comparison between wavelengths can be readily done. The OPBM product by Claire Lasers fulfills the need of the research community and it aims at supporting advances in the PBM research.

The OPBM product series offers simple, cost-effective, research tools that can be used for clinical studies with animals and unicellular biological species/lifeforms. Fascinating discovery awaits rigorous investigation on cellular and systemic physiology at the photochemical and biochemical level.

## OPBM Product Series: Advanced Characteristics

We introduce the OPBM Series from Claire Lasers: our mission is to deliver value and convenience to researchers working in the field of photobiomodulation/phototherapy.

Life scientists' expertise is focused on measuring the biological effects. There are many properties of optical radiation that must be characterized and controlled in a light source used for studying these biological effects.

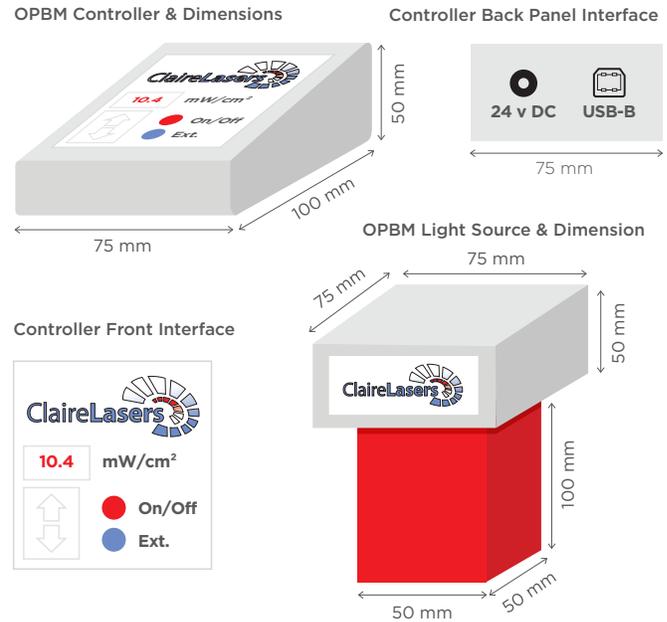
The control of the following properties is crucial for carrying on research project for advances in the field.

### The OPBM Series is designed to provide:

- a large beam dimension;
- homogeneous intensity over illuminated subject;
- stable intensity control;
- adjustable intensity (manual or serial interface);
- for reproducible energy dose deposition;
- faster setup for experimental studies.

The OPBM light source provides superior performance and convenience to facilitate photobiomodulation research and to enable the next advances in applications of phototherapy.

## OPBM Series: Mechanical System Layout



## Optical

Parameters	Value	Notes
Beam size (cm)	5	Nominal
Intensity (mW/cm <sup>2</sup> )	2-50	Adjustable
Intensity variance (%)	5%	From maximum
Total power (mW)	5-1250	Adjustable

## Control Interface

Control Capability	Manual Interface	Computer Interface
Intensity adjustment (mW/cm <sup>2</sup> )	TouchPad & display	Software application / adjustable
Total dose fluence (J/cm <sup>2</sup> )	Manual (timer)	Software application / controllable
Physical interface	ON/OFF & Ext. Control	USB-B + Driver

## Mechanical

System Requirements	Light Source	Controller
Physical dimension (mm <sup>3</sup> )	75 X 75 X 50	75 x 100 x 50
Weight (kg)	< 2	< 2

## Electrical

Power Requirements	Parameters
Voltage (V DC)	24
Maximum Power (W)	48
Maximum current (A DC)	2



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