

Opto-Spectrum Generator

— Recreates the ideal color as you need it —

■APPLICATIONS

- Light stimulus to living body
- Spectral characteristic evaluation of devices
- Optical property evaluation of materials
- Illumination



HAMAMATSU
PHOTON IS OUR BUSINESS

APPLICATIONS

Light stimulus to living body



Plant photosynthesis activity, plant culture, light stimulus to living cells

- High output 850 $\mu\text{mol}/\text{m}^2/\text{s}$ (at 700 nm) ^{①②③}
3000 $\mu\text{mol}/\text{m}^2/\text{s}$ (at 680 nm) ^{①②③}
4000 $\mu\text{mol}/\text{m}^2/\text{s}$ (at 460 nm) ^{①②③}
- Monochromatic light with high spectral purity

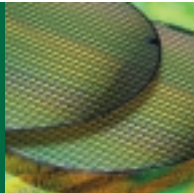
Spectral characteristic evaluation of devices



Evaluation of solar cell devices, camera spectral characteristics, optical system deflection characteristics and CCD/CMOS

- High monochromatic light output: 15 mW or more (visible type) ^{①②④}
- Sharp spectral profile

Optical property evaluation of materials



Evaluation of photocatalyst, fluorescent materials and solar cell materials

- High monochromatic light output: 15 mW or more (visible type) ^{①②④}
- Sharp spectral profile
- Uniform light irradiation ^⑤

Illumination



Light source of microscopes and endoscopes

- High output power: 75 mW/cm² or more (visible type) ^{①②}
Measured value (typical): 125 mW/cm² (at 436 nm)
- Uniform light irradiation ^⑤

① Initial illuminance measured with a light meter positioned at the light output end of the A10014-50-0110 light guide (sold separately) attached to the OSG.

② Light source: L12194-00-39070/-43079

③ Measured with Model LI-250 made by LI-COR.

④ Measured with NOVA II PD300-UV made by OPHIR.

⑤ When used with the E5147-06 uniform irradiation lens (sold separately) attached to the light guide.

FEATURES

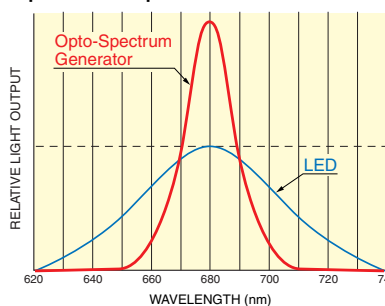
● Emits light "when & where you need it" over a wide range of wavelengths

With just one OSG you can freely select any desired wavelength in 1 nm steps with wavelength tuning at 50 nm per second. Product lineup gives a light emission spectrum ranging from ultraviolet to infrared region as a standard product feature.

● Ideal tool for making high-accuracy evaluations and tests

Emits light at any desired wavelength with high reproducibility by delivering a spectral half-width of approximately 20 nm (visible type) or approximately 15 nm (UV / near infrared type). This feature makes the OSG the ideal light source for evaluations and tests that demand higher accuracy than ever.

● Spectrum comparison *



* Spectrum comparison between typical 680 nm LED and 680 nm monochromatic light emitted from OSG

● "High output" while maintaining "high stability"

The OSG uses a high performance lamp and unique optical system we have developed and manufactured in-house for extracting light with high efficiency while maintaining high stability. This allows you to make a wide range of evaluations and tests compared to existing light sources and devices.

● "Compact body" means no more worries about installation space and location

Highly advanced functions are condensed into a compact body. This gives you a light source that fits into even limited spaces.

● Easy control from your PC

The built-in RS-232C interface allows you to easily set or control parameters such as wavelength, light output intensity and emission time from your PC. Hamamatsu also offers simple sample software that displays a setup screen.

● Sample software



SPECIFICATIONS

Parameter	UV Type	Visible Type		Near Infrared Type	Unit
	L12194-00-34054	L12194-00-39070	L12194-00-43079	L12194-00-70130	
Emission wavelength range	340 to 540	390 to 700	430 to 790	700 to 1300	nm
Spectral half-width	Approx. 15	Approx. 20		Approx. 15	nm
Irradiation intensity ^①	1 or more	15 or more		1 or more	mW
Light output stability	within ±5				%
Wavelength tunable width	1				nm
Wavelength tuning speed	50				nm/s
Warm-up time (Typ.)	10				min
Input voltage (AC)	100 V to 240 V, single phase 50 / 60 Hz				—
Power consumption	280				VA
Guaranteed lamp service life ^②	1000				h
Cooling method	Forced air cooling by fan				—
Ambient operating temperature	+5 to +35				°C
Storage operating temperature	-10 to +70				°C
Ambient humidity	Below 80% (no condensation)				—
Storage humidity	Below 80% (no condensation)				—
Control method (NOTE1)	Communication connector (RS-232C)				—
Applicable standards	IEC 61010-1: 2010, IEC 61326-1: 2005 Group 1 Class A				—

① Initial illuminance measured at the output end of the A10014-50-0110 light guide (sold separately) attached to the OSG.

② Measured with NOVA II PD300-UV made by OPHIR.

③ End of service life is defined as the time when irradiation intensity falls below 60 % of its initial illuminance.

* Please consult us if different wavelengths and specifications are needed.

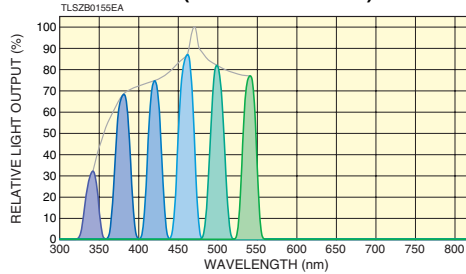
NOTE 1: <Control items>

- Lamp ON / OFF
- Shutter drive (open / close)
- Manual / Auto
- Timer setting
- Light level adjustment
- Emission wavelength setting
- Total lamp ON time
- Error signal

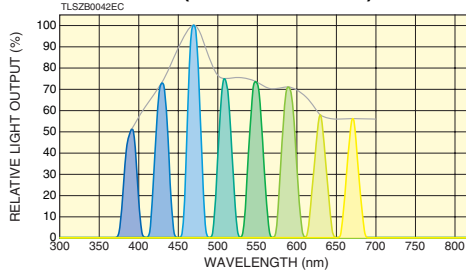
CHARACTERISTICS

● Emission spectrum examples *

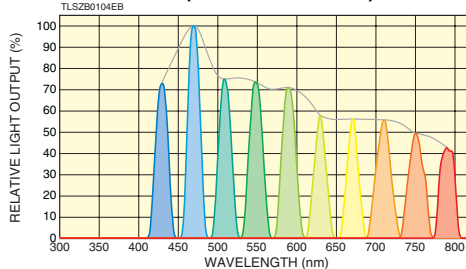
L12194-00-34054 (340 nm to 540 nm)



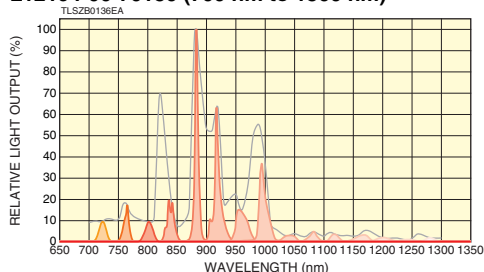
L12194-00-39070 (390 nm to 700 nm)



L12194-00-43079 (430 nm to 790 nm)



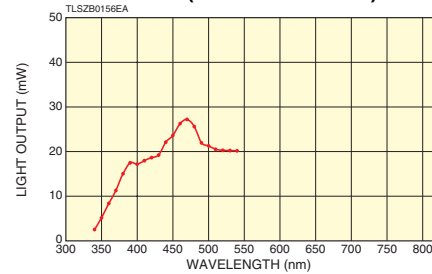
L12194-00-70130 (700 nm to 1300 nm)



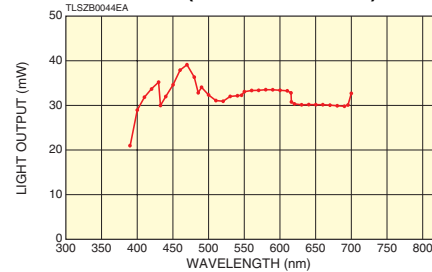
* Each graph shows emission spectra at a wavelength interval of 40 nm.

● Light output examples *

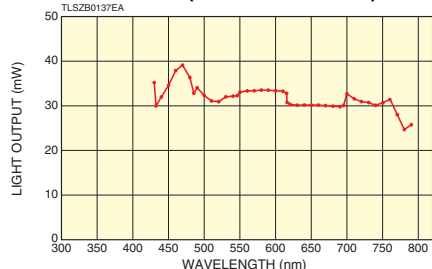
L12194-00-34054 (340 nm to 540 nm)



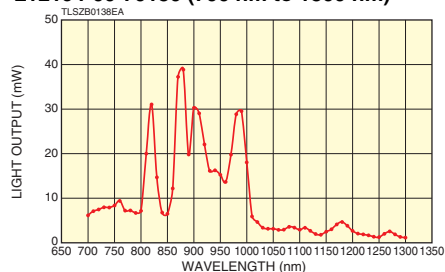
L12194-00-39070 (390 nm to 700 nm)



L12194-00-43079 (430 nm to 790 nm)

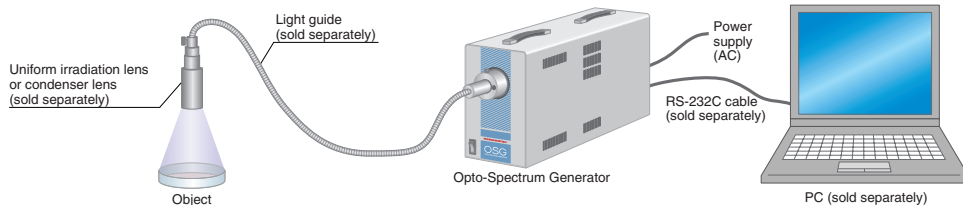


L12194-00-70130 (700 nm to 1300 nm)

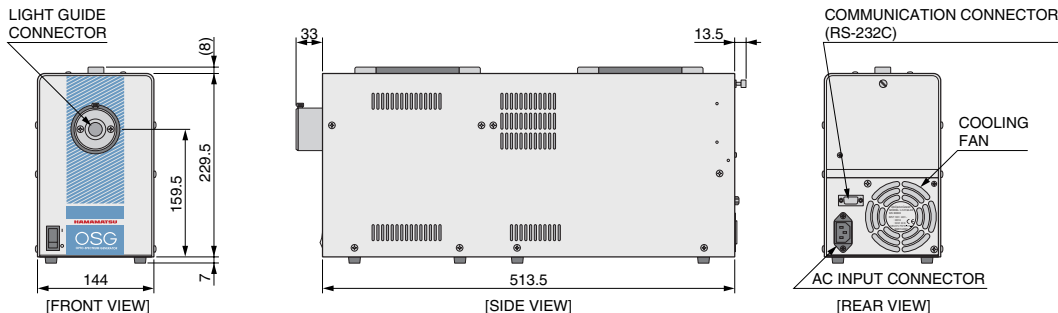


* Initial irradiation (reference values) measured at the output end of the A10014-50-0110 light guide (sold separately) attached to the OSG. Measured with NOVA II PD300-UV made by OPHIR.

CONNECTION EXAMPLE



DIMENSIONAL OUTLINE (Unit: mm)



ACCESSORIES

Light Guides

Hamamatsu provides quartz light guides with high UV to infrared transmittance as well as multicomponent light guides with high visible light transmittance.

* We also handle orders for custom-made products. Feel free to consult us for special needs.

Type No. Guide

A10014-50-0110

A: Core material
B: Output diameter
C: Furcated
D: Length

Type No.	Core Material
A10014	Synthetic silica
A10015	Glass

B (Suffix numbers are examples)	
Suffix	Output diameter
35	3.5 mm
50	5 mm
70	7 mm

C (Suffix numbers are examples)	
Suffix	Furcated
01	1
04	4
06	6

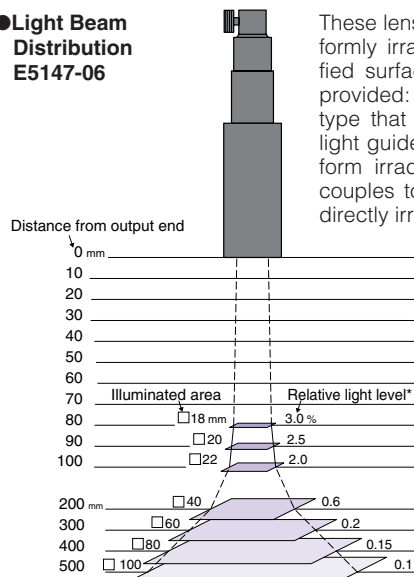
D (Suffix numbers are examples)	
Suffix	Length
10	1 m
15	1.5m
30	3 m

Condenser Lenses

These lenses serve to efficiently focus light emitted from the light guide. When irradiating an object separated some distance from the light guide, we recommend using a condenser lens. Available condenser lenses include a long focus lens, short focus lens, and right-angle irradiation lens.

Uniform Irradiation Lenses

Light Beam Distribution E5147-06



* Relative to the light level measured using the A10014-50-0110 light guide at a 10 mm distance, which is assumed to be 100%. Measured with C6080-04 made by Hamamatsu.

TLXSB0098EB

RELATED PRODUCTS

Photonic Multichannel Analyzer PMA-12 Series

The PMA-12 is compact spectral measurement apparatus that combines a spectrometer and optical detector into one unit.

The detector is so highly sensitive that the PMA can capture an optical spectrum by just bringing the optical fiber close to the reagent even without using a special condenser optical system. Combining the PMA with various optional peripheral devices lets you easily configure various types of measurement systems for measuring fluorescence, transmittance, absorbance, reflectance, colors, and micro spectrum, etc.



▲PMA-12

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HAMAMATSU PHOTONICS K.K., Electron Tube Division

314-5, Shimokanzo, Iwata City, Shizuoka Pref., 438-0193, Japan, Telephone: (81)539/62-5248, Fax: (81)539/62-2205

U.S.A.: Hamamatsu Corporation: 360 Foothill Road, Bridgewater, N.J. 08807-0910, U.S.A., Telephone: (1)908-231-0960, Fax: (1)908-231-1218 E-mail: usa@hamamatsu.com

Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49)8152-375-0, Fax: (49)8152-2658 E-mail: info@hamamatsu.de

France: Hamamatsu Photonics France S.A.R.L.: 19, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: (33)1 69 53 71 00, Fax: (33)1 69 53 71 10 E-mail: infos@hamamatsu.fr

United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, United Kingdom, Telephone: (44)1707-294888, Fax: (44)1707-325777 E-mail: info@hamamatsu.co.uk

North Europe: Hamamatsu Photonics Norden AB: Torshamnsgatan 35 SE-164 40 Kista, Sweden, Telephone: (46)8-509-031-00, Fax: (46)8-509-031-01 E-mail: info@hamamatsu.se

Italy: Hamamatsu Photonics Italia S.r.l.: Strada della Moia, 1 int. 6, 20020 Arese (Milano), Italy, Telephone: (39)02-93581733, Fax: (39)02-93581741 E-mail: info@hamamatsu.it

China: Hamamatsu Photonics (China) Co., Ltd.: B1201 Jiaming Center, No.27 Dongsanhuan Beilu, Chaoyang District, Beijing 100020, China, Telephone: (86)10-6586-6006, Fax: (86)10-6586-2866 E-mail: hpc@hamamatsu.com.cn

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