

Line-up of applied products of semiconductor lasers

LD-HEATER

LD Heating Light Source



SPOLD[®]
LD Irradiation Light Source

Semiconductor laser products ideal for thermal processing applications
Effective in saving energy at production sites! Laser heating supersedes electric furnace!

These are applied products of semiconductor lasers which are appropriate to thermal processing. We assort 3 types of products, SPOLD is the lightweight & compact spot laser light source suitable for mounting into equipment, SPOLD built-in process monitor and LD-HEATER have the built-in function of thermal monitoring at process point.

Features

■ SPOLD[®]

- High reliability
(analog current control, low process difference)
- Various line up by output powers
- Easy install for compact irradiation units
- Specialized for embedded
- Easy interface for external control
- Beam profile ideal for heating applications

■ LD-HEATER

- High reliability
- Real-time temperature monitoring function
- Energy saving and small footprint
- Equipped with various safety functions
- Dedicated control unit (sold separately) also available
- Beam profile ideal for heating applications

Applications

- Plastic welding
- Soldering
- Waterproof seal (activate adhesive tape)
- Glass sealing
- Adhesive thermal curing
- Drying of the coating
- Brazing
- Thermal processing
- Infrared illumination, etc.

Universal model! Lightweight & compact spot laser light source suitable for mounting into equipment
Low price, compact body and lightweight ideal for simultaneous use of multiple units

■ Specifications

Items		Specifications			
LD irradiation light source main unit	Model no.	L14140-11	L14140-21	L14140-31	
	Light output (with maximum current setting)	Output end of Laser transmitting optical fiber	9.5 W (min.)		15 W (min.)
		Output end of Irradiation unit	9 W (min.)		13.5 W (min.)
	Laser type	Laser diode (LD)			
	Oscillation mode	CW			
	Peak oscillation wavelength (25 °C)	915 nm ± 20 nm			
	Cooling method	Air cooling			
	Red guide beam	Not including			
	Control section	Safety function	Interlock ^{*1)}		
		External control	External control terminal (D-sub 15-pin connector)		
General ratings	Dimensions (WxHxD)	Approx. 280 mm × 100 mm × 300 mm (excluding projecting parts)			
	Weight	Approx. 4.5 kg			
Laser transmitting optical fiber	Model no.	A11612 series			
	Fiber length	Approx. 2 m			
Irradiation unit	Model no.	A12803 series			
	Light condensing spot diameter	φ0.1 mm to φ0.8 mm ^{*2)}	φ0.2 mm to φ3.2 mm ^{*2)}	φ0.4 mm to φ3.2 mm ^{*2)}	

*1) This unit is for embedded use, the interlock circuit does not conform to safety category 4. Please correspond to the safety category 4 as the whole equipment.

*2) Depends on fiber core diameter and condensing magnification

* There are multiple choices for laser light source main unit, laser transmitting optical fibers and irradiation unit. Contact us about the detail of specifications if required.

Items		Specifications					
LD irradiation light source main unit	Model no.	L13920-411	L13920-421	L13920-511	L13920-521	L13920-611	
	Light output (with maximum current setting)	Output end of Laser transmitting optical fiber	30 W (min.)		75 W (min.)	60 W (min.)	200 W (min.)
		Output end of Irradiation unit	27 W (min.)		67.5 W (min.)	54 W (min.)	180 W (min.)
	Laser type	Laser diode (LD)					
	Oscillation mode	CW					
	Peak oscillation wavelength (25 °C)	940 nm ± 20 nm	808 nm ± 20 nm	940 nm ± 20 nm	808 nm ± 20 nm	940 nm ± 20 nm	
	Cooling method	Air cooling					
	Red guide beam	Including					
	Control section	Safety function	Interlock ^{*2)}				
		External control	External control terminal (D-sub 25-pin connector)				
General ratings	Dimensions (WxHxD)	Approx. 360 mm × 150 mm × 360 mm (excluding projecting parts)					
	Weight	Approx. 13 kg				Approx. 12 kg	
Laser transmitting optical fiber	Model no.	A11612 series					
	Fiber length	Approx. 5 m					
Irradiation unit	Model no.	A12803 series					
	Light condensing spot diameter	0.4 mm to 6.4 mm ^{*3)}					

*1) Excluding cooler unit needs to be prepared separately. Cooling water condition: 2 L/min to 3 L/min, cooling capacity: more than 300 W

*2) This unit is for embedded use, the interlock circuit does not conform to safety category 4. Please correspond to the safety category 4 as the whole equipment.

*3) Depends on fiber core diameter and condensing magnification

* There are multiple choices for laser light source main unit, laser transmitting optical fibers and irradiation unit. Contact us about the detail of specifications if required.



▲ L14140 series



▲ L13920 series

"Visualization" of laser processing with real time monitoring system The "KEY" of management solution for laser processing

■ Specifications

Items		Specifications		
LD irradiation light source (with process monitor) main unit	Model no.	L11785-61M	L12333-411M	L12333-511M
	Light output (with maximum current setting, at the focal spot of irradiation unit)	8.5 W (min.)	30 W (min.)	70 W (min.)
	Laser type	Laser diode (LD)		
	Oscillation mode	CW		
	Peak oscillation wavelength (25 °C)	915 nm ± 20 nm	940 nm ± 20 nm	
	Cooling method	Air cooling		
	External control	D-sub 15 pin (main unit, process monitor)	D-sub 25 pin (main unit) / D-sub 15 pin (process monitor)	
	Dimensions (W × H × D)	Approx. 280 mm × 180 mm × 300 mm (excluding projecting parts)	Approx. 360 mm × 230 mm × 360 mm (excluding projecting parts)	
	Weight	≥ 8 kg	≥ 17 kg	
	Measurable infrared output ⁽¹⁾	200 °C to 600 °C equivalent		
	Measurement cycle	1 ms		
	Output power specifications	0 V to 10 V (BNC connector) / 4 mA to 20 mA (M3 terminal screw)		
	Laser transmitting optical fiber	Model no.	A11612-M2SS2D ⁽²⁾	A11612-K8DD5R ⁽²⁾
Fiber length		Approx. 2 m	Approx. 5 m	
Model no.		A12803 series		
Irradiation unit	Light condensing spot diameter	φ0.2 mm to φ3.2 mm ⁽³⁾	φ0.8 mm to φ6.4 mm ⁽³⁾	

⁽¹⁾ When measured using a blackbody furnace (emissivity: 0.93)

⁽²⁾ Contact us if longer / shorter optical fiber is needed.

⁽³⁾ Depends on fiber core diameter and condensing magnification

* "LD Irradiation Light Source (built-in Process Monitor)" is sold as one product which integrates main unit of LD Irradiation Light Source (built-in process monitor), laser transmitting fiber and irradiation unit. Each component cannot be removed.



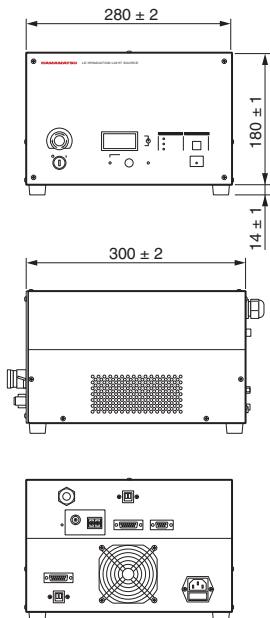
▲ L11785-61M



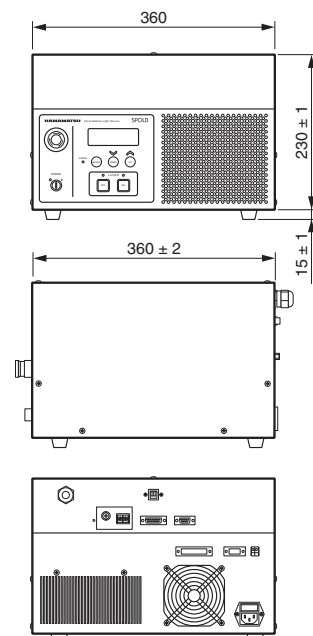
▲ L12333-411M, -511M

■ Dimensional outline (unit: mm)

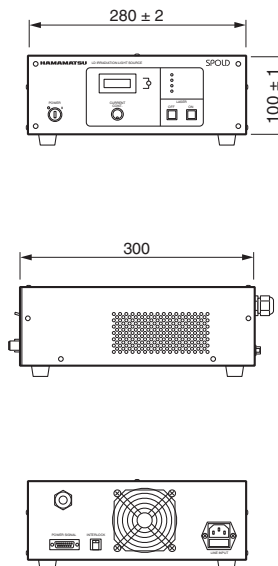
• L11785-61M



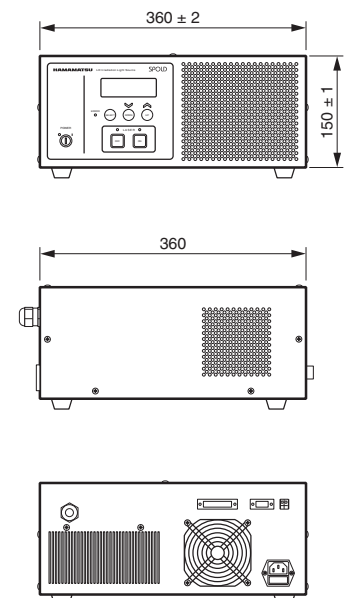
• L12333-411M, 511M



• L14140 series



• L13920 series



LD Heating Light Source **LD-HEATER****LD-HEATER**

High-performance model! Spot-heater light sources with a processing point temperature monitoring function
Integrating a real time temperature monitoring of processing state, suitable for finding optimal processing conditions and analyzing defects.

■ Specifications

Items		Specifications		
Laser unit and control unit	Model no.	L10060-4xxxx	L10060-5xxxx	L10060-6xxxx
	Light output at the fiber output end	30 W	75 W	200 W
	Light output at irradiation unit output end	27 W	70 W	180 W
	Laser type	Laser diode (LD)		
	Oscillation mode	CW		
	Peak oscillation wavelength (25 °C)	940 nm ± 20 nm ^{*1)}		
	Cooling method	Air cooling	Water cooling	
	Safety function	Emergency stop switch, interlock		
Temperature monitor	External control	D-Sub 25 pin		
	Measurement temperature range ^{*2)}	200 °C to 600 °C / 500 °C to 1050 °C		
	Measurement accuracy	±10 °C		
General ratings	Measurement cycle ^{*2)}	20 Hz, 50 Hz, 100 Hz, 200 Hz switchable		
	Dimensions (W × H × D)	Approx. 240 mm × 540 mm × 540 mm (excluding front panel projecting parts and signal tower)		
Laser transmission fiber irradiation unit	Weight	Approx. 32 kg	Approx. 33 kg ^{*3)}	
	Fiber length	Approx. 5 m		
	Light condensing spot diameter	φ0.8 mm to φ6.4 mm ^{*4)}		

*1) Other wavelengths are available as options. Contact us for further information.

*2) When measured using a blackbody furnace (spot diameter: 1.6 mm)

*3) Excluding cooler unit

*4) Depends on fiber core diameter and condensing magnification

* Use dedicated control unit to operate the LD-HEATER.

* Rated power supply voltage for cooler unit is 100 V.

* Observation camera and adapter are separately available.

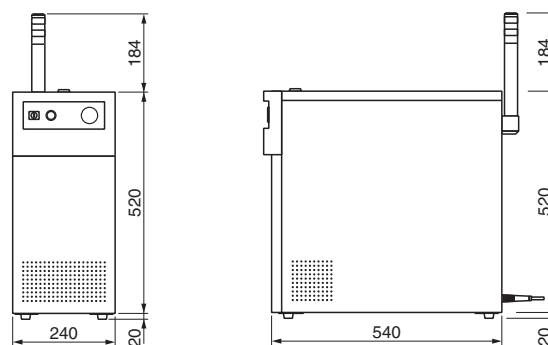


▲ L10060-4xxxx, -5xxxx

* The photo also shows the C11832-33 control unit (sold separately).

■ Dimensional outline (unit: mm)

- Laser unit (one size for all type)



Safety measures for laser products

This product is a Class 4 laser product.

According to laser safety standards IEC 60825-1, which obligate manufacturers to provide preventive safety measures, Hamamatsu laser products are classified to implement appropriate safety measures and display required labels.

The user should also implement safety measures in compliance with applicable regulations in the relevant country.

Labels displayed (sample)



Explanatory label



Warning label

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