HAMAMATSU

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SPOLD®
LD Irradiation Light Source
L14140 series

■Features

●Energy saving
●Compact, lightweight
●Air cooling system

■Applications

●Plastic welding
●Soldering
●Dissimilar materials bonding
●Glass seal
●Sintering of metal nanoinks

■Outline

This laser irradiation light source compactly combines a fiber output type laser diode (LD) bar module and a drive circuit. The desired beam diameter and beam profile can be irradiated by selecting the irradiation unit.

■Application image

Figure 1: Soldering

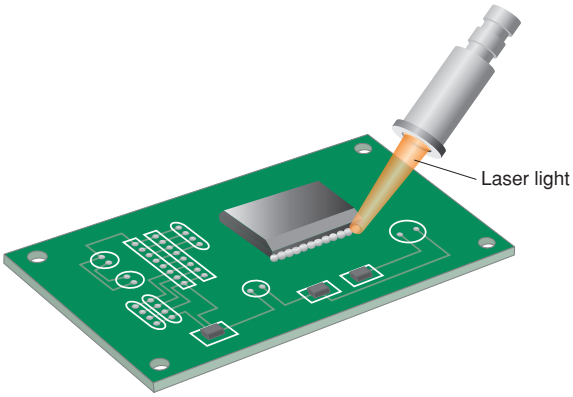
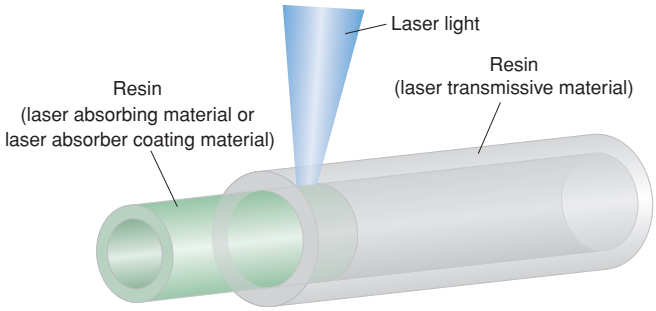


Figure 2: Plastic welding of medical devices



SPOLD® LD Irradiation Light Source L14140 series

■General ratings

Parameter	Value	Unit
Operating temperature *1	+10 to +30	°C
Storage temperature *1*2	-10 to +50	°C
Storage and Operating Humidity *1	10 to 60	%
Place of use	Indoor at an altitude of ≤ 2000 m	—

*1 No condensation
*2 No freezing

■Specifications

Parameter		Specification				Unit
		L14140-11	L14140-21	L14140-31	L14140-55	
Radiant power (with maximum current setting)		9 (min.)		15 (min.)	2.3 (min.)	W
Oscillation type		CW				—
Peak emission wavelength		915 ± 20			448 ± 5	nm
Cooling method		Air cooling				—
Red guide light		None				—
Control unit	Safety function	Interlock				—
	External control	External control terminal (D-Sub 15 pin)				—
Dimensions (W × H × D)		280 × 100 × 300 (excluding protrusions)				mm
Weight		Approx. 28			Approx. 5	kg
Laser transmission optical fiber	Type no.	A11612 series				—
	Fiber length	Approx. 2				m
Irradiation unit	Type no.	A12803 series				—
	Condensing diameter	ϕ0.1 to ϕ0.8	ϕ0.2 to ϕ3.2	ϕ0.4 to ϕ3.2	ϕ0.1 to ϕ1.6	mm
	Working distance	Approx. 45 to 100				mm

* This product is sold as a single unit with the LD irradiation light source main unit, so each item can not be removed.

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■Built-in process monitor type

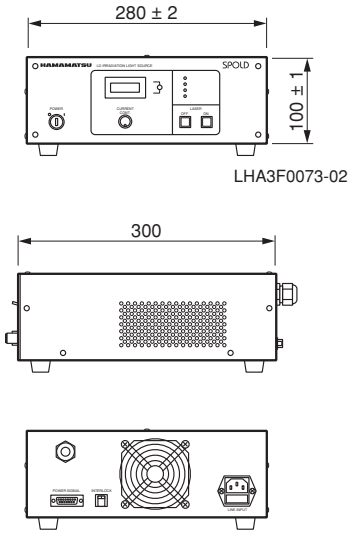
"Visualization" of thermal process was realized by built-in monitoring function.
Reliable acquisition of the thermal information at the laser processing point improves the quality control of laser processing.

■Specifications

Parameter		Specification L14140-21M	Unit
Radiant power (with maximum current setting)		8.5 (min.)	W
Oscillation type		CW	—
Peak emission wavelength		915 ± 20	nm
Cooling method		Air cooling	—
Red guide light		Available	—
Measurement cycle		1	ms
Measurement signal output specifications		0 V to 10 V (BNC connector) / 4 mA to 20 mA (M3 terminal screw) When measuring the amount of light equivalent to 200 °C to 650 °C in a blackbody furnace (emissivity 0.93)	—
Control unit	Safety function	Interlock	—
	External control	External control terminal (D-Sub 15 pin)	—
Dimensions (W × H × D)		280 × 170 × 300 (excluding protrusions)	mm
Weight		Approx. 8	kg
Laser transmission optical fiber	Type no.	A11612 series	—
	Fiber length	Approx. 2	m
Irradiation unit	Type no.	A12803 series	—
	Condensing diameter	ϕ0.4 to ϕ3.2	mm
	Working distance	Approx. 45 to 100	mm

Figure 3: Dimensions (unit: mm)

●L14140-xx



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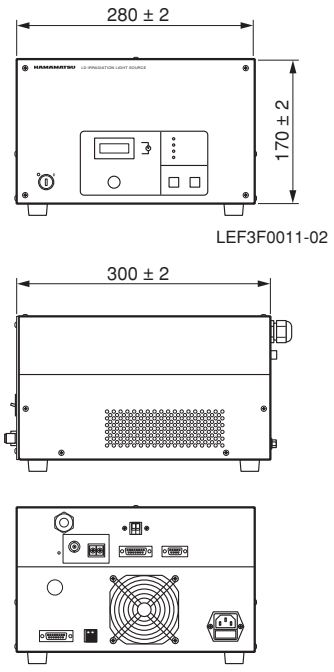
●L14140-21M



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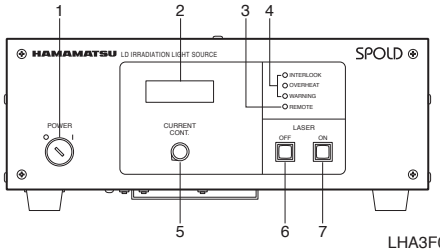
SPOLD® LD Irradiation Light Source L14140 series

Figure 4: Name and function

●L14140-xx



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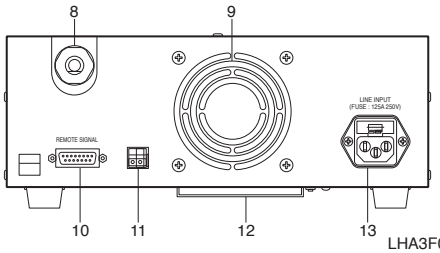
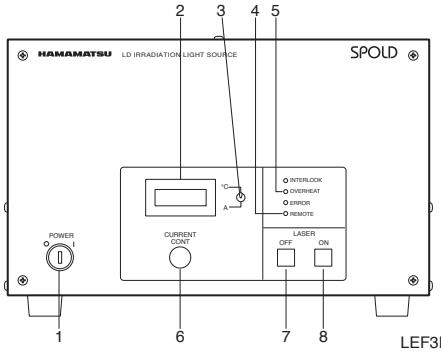


LHA3F0073-03

No.	Name	Functions and applications
1	Power switch (key switch)	Switching ON/OFF the power of the light source main unit
2	Display panel	Display LD current and LD installation part's temperature, blink when an alarm is issued
3	Alarm indicators	Light when an error occurs (forced stop of laser irradiation)
4	Remote status indicator	Light in case of the remote state (can be controlled externally)
5	LD current adjustment knob	Set the current applied to the LD in case of the local state (operation from the front panel)
6	Laser stop switch	In case of the local state, the laser irradiation is stopped by pressing this switch, and the internal indicator lights up while the laser irradiation is stopped
7	Laser irradiation switch	In case of the local state, press this switch to irradiate the laser, and the internal indicator lamp lights during laser irradiation
8	Laser transmission optical fiber outlet	Laser transmission optical fiber outlet
9	Cooling fan outlet	Air outlet of the radiator fan
10	External control signal input/output terminal	Terminal for external control
11	EMGCY (interlock) terminal	Laser irradiation stops when these terminals are opened
12	Cooling fan inlet	Air inlet of the cooling element (peltier) cooling fan
13	AC inlet (open device)	Power cable inlet, built-in fuse

*Securely connect the GND

●L14140-21M



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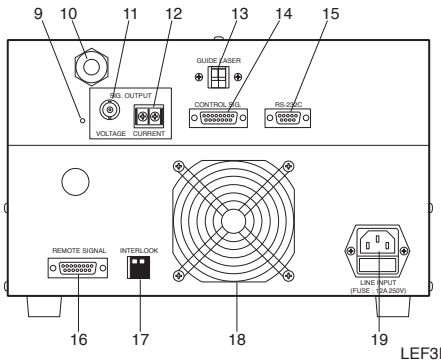

LEF3F0011-03

No.	Name	Functions and applications
1	Power switch (key switch)	Switching ON/OFF the power of the light source main unit
2	Display panel	Display LD current and LD installation part's temperature, blink when an alarm is issued
3	Display selector switch	Display LD current at the upper side, and display temperature at the lower side
4	Alarm indicators	Light when an error occurs (forced stop of laser irradiation)
5	Remote status indicator	Light in case of the remote state (can be controlled externally)
6	LD current adjustment knob	Set the current applied to the LD in case of the local state (operation from the front panel)
7	Laser stop switch	In case of the local state, the laser irradiation is stopped by pressing the switch, and the internal indicator light up while the laser irradiation is stopped
8	Laser irradiation switch	In case of the local state, press the switch to irradiate the laser, and the internal indicator lamp light during laser irradiation
9	LEDs for power ON indication	Light when the power is ON
10	Laser transmission optical fiber outlet	Outlet of the laser transmission optical fiber Do not touch
11	Analog voltage output terminal (SIG. OUTPUT VOLTAGE)	Output thermal information in voltage BNC connector receptacle
12	Analog current output terminal (SIG. OUTPUT CURRENT)	Output thermal information in current
13	Guide light input terminal (GUIDE LASER)	Guide light ON when short-circuited
14	Process monitor control signal input terminal (CONTROL SIGNAL)	Input terminal for process monitor
15	Serial communication terminal (RS-232C)	Not used, for maintenance
16	Laser external control signal input/output terminal (REMOTE SIGNAL)	Input terminal for laser external control
17	Interlock terminal	Laser irradiation stops when these terminals are opened
18	Cooling fan outlet	Air outlet of the radiator fan
19	AC inlet (open device)	Power cable inlet, built-in fuse

●Information described in this material current as of May 2022. Specifications are subject to change without notice.

HAMAMATSU PHOTONICS K.K. www.hamamatsu.com

Laser Division, Business Promotion G.
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, NJ 08807, U.S.A., Telephone: (1)908-231-0960, Fax: (1)908-231-1218
Germany: HAMAMATSU PHOTONICS DEUTSCHLAND GMBH.: Arzbergerstr. 10, 82211 Herrsching am Ammersee, Germany, Telephone: (49)8152-375-0, Fax: (49)8152-265-8 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, UK, Telephone: (44)1707-294888, Fax: (44)1707-325777 E-mail: info@hamamatsu.co.uk
North Europe: HAMAMATSU PHOTONICS NORDEN AB: Torshamnsgatan 35, 16440 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 20044 Arese (Milano), Italy, Telephone: (39)02-93 58 17 33, Fax: (39)02-93 58 17 41 E-mail: info@hamamatsu.it
China: HAMAMATSU PHOTONICS (CHINA) CO., LTD.: 1201, Tower B, Jiaming Center, 27 Dongsanhuan Beilu, Chaoyang District, 100020 Beijing, P.R. China, Telephone: (86)10-6586-6006, Fax: (86)10-6586-2866 E-mail: hpc@hamamatsu.com.cn
Taiwan: HAMAMATSU PHOTONICS TAIWAN CO., LTD.: 13F-1, No.101, Section 2, Gongdao 5th Road, East Dist., Hsinchu City, 300046, Taiwan(R.O.C) Telephone: (886)3-659-0080, Fax: (886)3-659-0081 E-mail: info@hamamatsu.com.tw

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