

■ **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

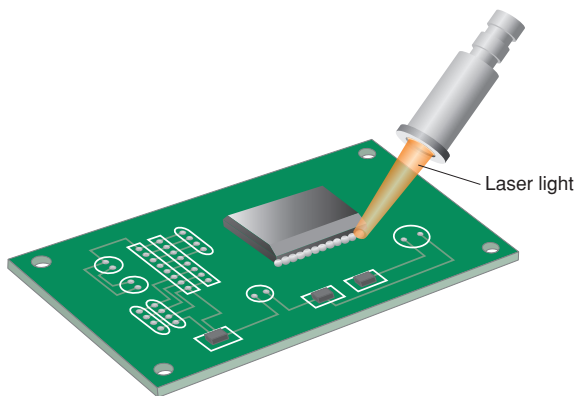
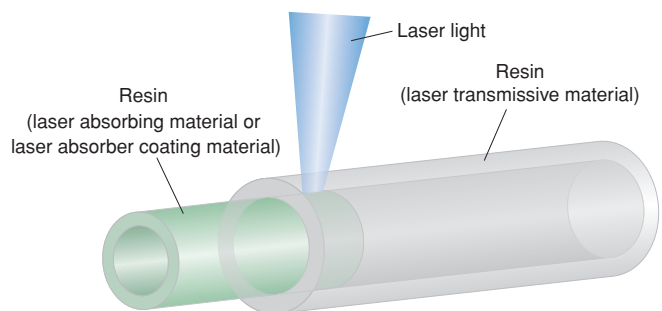


Figure 2: Plastic welding of medical devices



# 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.

# SPOLD® LD Irradiation Light Source L14140 series

## ■Built-in process monitor type



"Visualization" of thermal process was realized by built-in monitoring function.

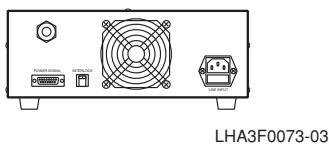
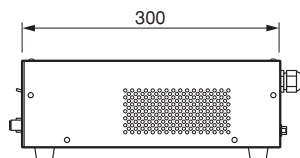
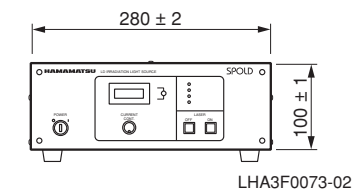
Reliable acquisition of the thermal information at the laser processing point improves the quality control of laser processing.

## ■Specifications

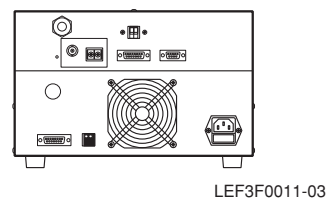
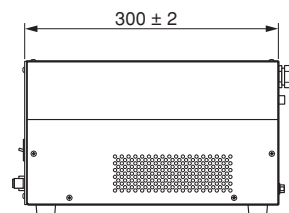
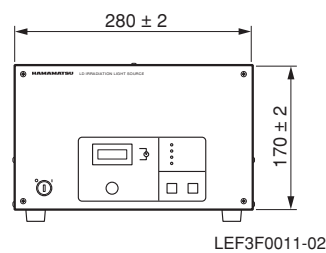
Parameter		Specification	Unit
		L14140-21M	
Radiant power (with maximum current setting)		8.5 (min.)	W
Oscillation type		CW	—
Peak emission wavelength		915 ± 20	nm
Cooling method		Air cooling	—
Red guide light		Available	—
Measurement cycle		1	ms
Measurement signal output specifications		0 V to 10 V (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



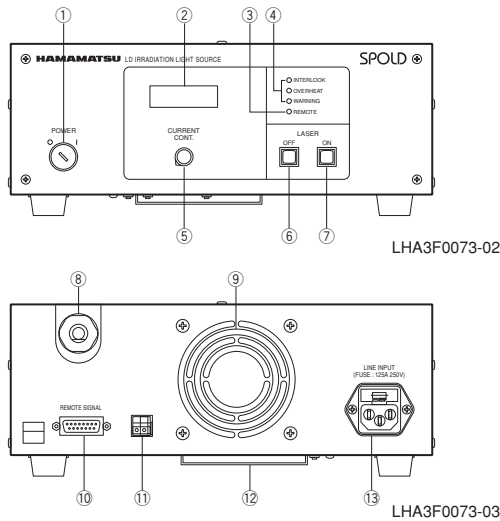
### ●L14140-21M



# SPOLD® LD Irradiation Light Source L14140 series

Figure 4: Name and function

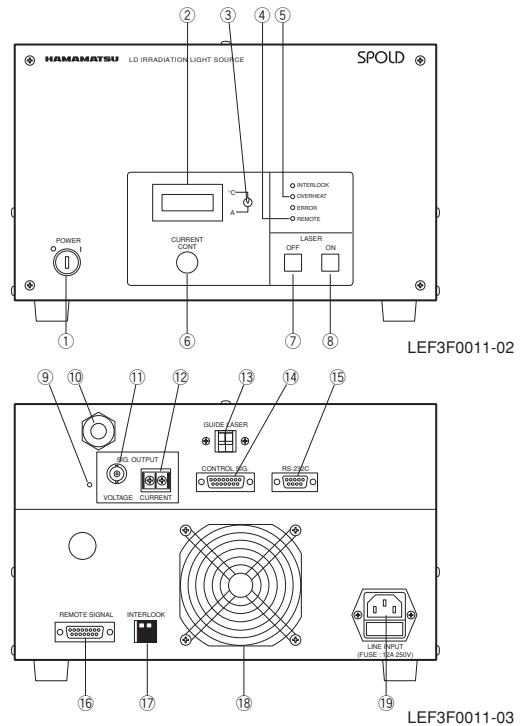
## ●L14140-xx



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



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

●SPOLD is registered trademark of Hamamatsu Photonics K.K..

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

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