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# SPOLD®
# LD Irradiation Light Source
# L13920 series

## ■Features

●Energy saving
●Compact, lightweight
●Specialized for embedded applications

## ■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.

## ■General ratings

| Parameter | Value | Unit |
|---|---|---|
| Operating temperature *1 | +10 to +30 | °C |
| Storage temperature *1*2 | 0 to +50 | °C |
| Storage and Operating Humidity *1 | 60 or less | % |
| Place of use | Indoor at an altitude of ≤ 2000 m | — |

*1 No condensation
*2 No freezing

## ■Specifications

| Parameter | | Specification | | | | | | Unit |
|---|---|---|---|---|---|---|---|---|
| | | L13920-411 | L13920-421 | L13920-511 | L13920-521 | L13920-611 | L13920-711 | |
| Radiant power (with maximum current setting) | | 30 (min.) | | 75 (min.) | 60 (min.) | 200 (min.) | 360 (min.) | W |
| Oscillation type | | CW | | | | | | — |
| Peak emission wavelength | | 940 ± 20 | 808 ± 20 | 940 ± 20 | 808 ± 20 | 940 ± 20 | | nm |
| Cooling method | | Air cooling | | | | Distilled water cooling | | — |
| Red guide light | | Available | | | | | | — |
| Control unit | Safety function | Interlock | | | | | | — |
| | External control | External control terminal (D-Sub 25 pin) | | | | | | — |
| Dimensions (W × H × D) | | 360 × 150 × 360 (excluding protrusions) | | | | | 480 × 250 × 500 (excluding protrusions) | mm |
| Weight | | Approx. 13 | | | | Approx. 12 | Approx. 28 | kg |
| Laser transmission optical fiber | Type no. | A11612 series | | | | | | — |
| | Fiber length | Approx. 5 | | | | | | m |
| Irradiation unit | Type no. | A12803 series | | | | | A15558 series | — |
| | Condensing diameter | φ0.4 to φ6.4 | | | | φ0.6 to φ6.4 | φ3.2 to φ6.4 | mm |
| | Working distance | Approx. 45 to 200 | | | | Approx. 100 to 200 | | 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 L13920 series

## ■Built-in process monitor type

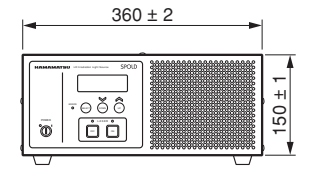
"Visualization" of thermal process was realized by built-in monitoring function.
Reliable acquisition of the thermal information at the laser processing point improves the quality control of laser processing.

## ■Specifications

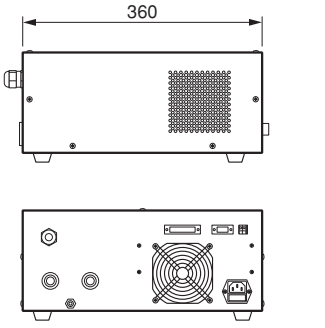
| Parameter | | Specification | | Unit |
|---|---|---|---|---|
| | | L13920-411M | L13920-511M | |
| Radiant power (with maximum current setting) | | 30 (min.) | 70 (min.) | W |
| Oscillation type | | CW | | — |
| Peak emission wavelength | | 940 ± 20 | | nm |
| Cooling method | | Air cooling | | — |
| 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)<br>When measuring the amount of light equivalent to 200 °C to 650 °C<br>in a blackbody furnace (emissivity 0.93) | | — |
| Control unit | Safety function | Interlock | | — |
| | External control | External control terminal (D-Sub 25 pin) (light source section) | | — |
| Dimensions (W × H × D) | | 360 × 230 × 360 (excluding protrusions) | | mm |
| Weight | | Approx. 17 | | kg |
| Laser transmission optical fiber | Type no. | A11612 series | | — |
| | Fiber length | Approx. 5 | | m |
| Irradiation unit | Type no. | A12803 series | | — |
| | Condensing diameter | $\phi$0.6 to $\phi$6.4 | | mm |
| | Working distance | Approx. 45 to 200 | | mm |

Figure 1: Dimensions (unit: mm)

### ●L13920-xxx (excluding -711)

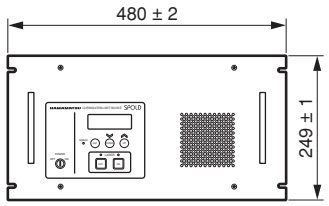



LEF3F0010-03




LEF3F0010-04

### ●L13920-711

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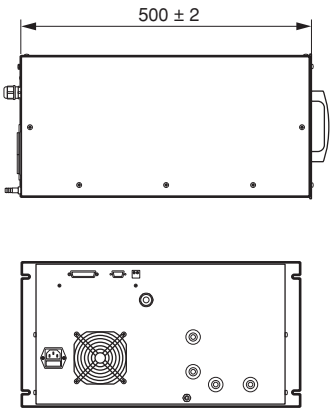
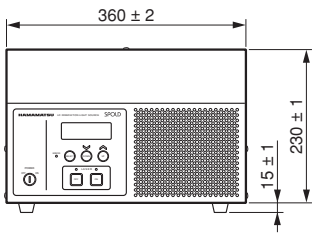



LEF3F0025-27-A

### ●L13920-x11M




LHA3F0104-02

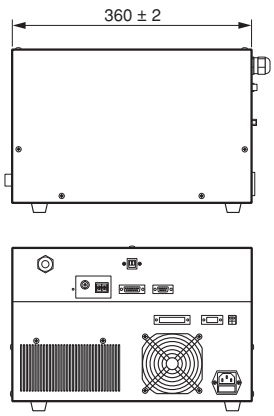



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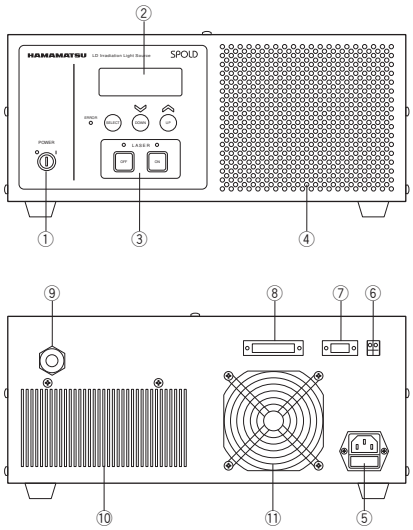
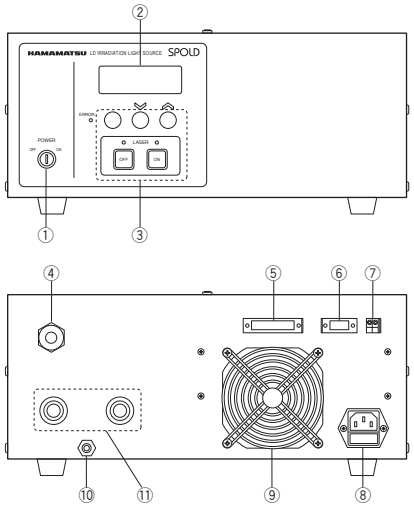
Figure 2: Name and function

## ●L13920-x11 (excluding -611, -711)




| 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 | Operation switch/indicator lamp | Control and display laser irradiation |
| ④ | Air inlet | Inlet air for LD cooling |
| ⑤ | AC inlet (open device) | Power cable inlet, built-in fuse (GND should be securely connected) |
| ⑥ | Interlock terminal | Laser irradiation stops when these terminals are opened |
| ⑦ | Serial communication terminal | Not used, for maintenance |
| ⑧ | Laser external control signal input terminal | Input/Output terminal for laser external control |
| ⑨ | Laser transmission optical fiber outlet | Laser transmission optical fiber outlet |
| ⑩ | Air outlet | LD cooling air outlet |
| ⑪ | Cooling fan outlet | Air outlet of radiator fan |

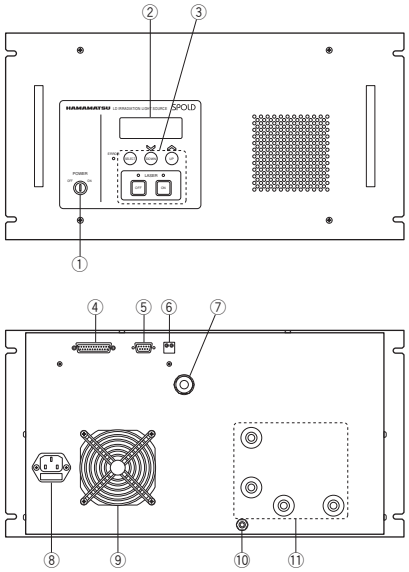
## ●L13920-611




| 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 | Operation switch/indicator lamp | Control and display laser irradiation |
| ④ | Laser transmission optical fiber outlet | Laser transmission optical fiber outlet |
| ⑤ | Laser external control signal input/output terminal | Input/Output terminal for laser externa control |
| ⑥ | Serial communication terminal | Not used, for maintenance |
| ⑦ | Interlock terminal | Laser irradiation stops when these terminals are opened |
| ⑧ | AC inlet (open device) | Power cable inlet, built-in fuse (GND should be securely connected) |
| ⑨ | Cooling fan outlet | Air outlet of radiator fan |
| ⑩ | Cooling water drain | Inside diameter ϕ8 mm horse connection tube |
| ⑪ | Cooling water inlet/outlet | ϕ8 mm tube connection fitting |

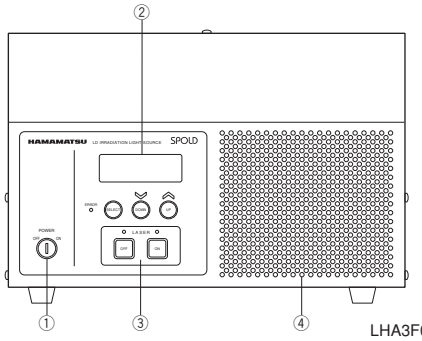
# SPOLD® LD Irradiation Light Source L13920 series

## ●L13920-711

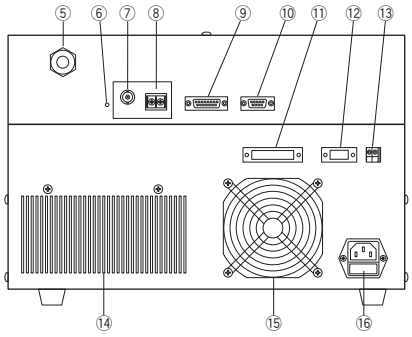



| No. | Name | Functions and applications |
|---|---|---|
| ① | Power switch (key switch) | Switching ON/OFF the power of the light source main unit |
| ② | Display panel | Display LD current and LD installation part's temperature, blink when an alarm is issued |
| ③ | Operation switch/indicator lamp | Control and display laser irradiation |
| ④ | Laser external control signal input/output terminal | Input/Output terminal for laser external control |
| ⑤ | Serial communication terminal | Not used, for maintenance |
| ⑥ | Interlock terminal | Laser irradiation stops when these terminals are opened |
| ⑦ | Laser transmission optical fiber outlet | Laser transmission optical fiber outlet |
| ⑧ | AC inlet (open device) | Power cable inlet, built-in fuse (GND should be securely connected) |
| ⑨ | Cooling fan outlet | Air outlet of radiator fan |
| ⑩ | Cooling water drain | Inside diameter $\phi$8 mm horse connection tube |
| ⑪ | Cooling water inlet/outlet | $\phi$8 mm tube connection fitting |

## ●L13920-x11M




LHA3F0104-02

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| 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 | Operation switch/indicator lamp | Control and display laser irradiation |
| ④ | Air inlet | Air inlet for LD cooling |
| ⑤ | Laser transmission optical fiber outlet | Laser transmission optical fiber outlet |
| ⑥ | LEDs for power ON indication | Light when power is ON |
| ⑦ | Analog voltage output terminal | Output thermal information in voltage BNC connector receptacle |
| ⑧ | Analog current output terminal | Output thermal information in current M3 terminal screw |
| ⑨ | Process monitor control signal input terminal | Input/Output terminal for process monitor |
| ⑩ | Connector for maintenance | Not used, for maintenace |
| ⑪ | Laser external control signal input/output terminal | Input terminal for laser external control |
| ⑫ | Serial communication terminal | Not used, for maintenace |
| ⑬ | Interlock terminal | Laser irradiation stops when these terminals are opened |
| ⑭ | Air outlet | LD cooling air outlet |
| ⑮ | Cooling fan outlet | Air outlet of the radiation fan |
| ⑯ | AC inlet (open device) | Power cable inlet, built-in fuse (GND should be securely connected) |


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


## HAMAMATSU PHOTONICS K.K. www.hamamatsu.com

**Laser Promotion Division, Business Promotion G.**
**1-8-3, Shinmiyakoda, Kita-ku, Hamamatsu City, Shizuoka, 431-2103, Japan, Telephone: (81)53-484-1301, Fax: (81)53-484-1302, E-mail: sales-laser@lpd.hpk.co.jp**

**U.S.A.:** HAMAMATSU CORPORATION: 360 Foothill Road, Bridgewater, NJ 08807, 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, 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.: 8F-3, No.158, Section 2, Gongdao 5th Road, East District, Hsinchu, 300, Taiwan R.O.C. Telephone: (886)3-659-0080, Fax: (886)3-659-0081 E-mail: info@hamamatsu.com.tw



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