

■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  | L13920-511 | L13920-611              | L13920-711                              |      |
| Radiant power (with maximum current setting) | 30 (min.)   | 75 (min.)  | 200 (min.)              | 360 (min.)                              | W    |
| Oscillation type                             | CW  |            |                         |   | —    |
| Peak emission wavelength                     | 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              |   | kg   |
| Laser transmission optical fiber             | Type no. A11612 series                                    |            |                         |   | —    |
|  | Fiber length Approx. 5                                    |            |                         |   | m    |
| Irradiation unit                             | Type no. A12803 series                                    |            |                         |   | —    |
|  | Condensing diameter φ 0.4 to φ 6.4                        |            | φ 0.6 to φ 6.4          |   | mm   |
|  | Working distance Approx. 45 to 200                        |            | Approx. 100 to 200      |   | mm   |
|  |   |            |                         | A15558 series                           | —    |
|  |   |            |                         | φ 3.2 to φ 6.4                          | 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.

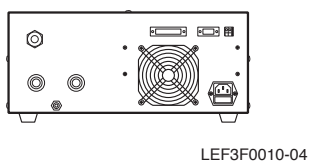
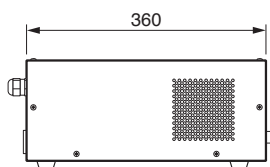
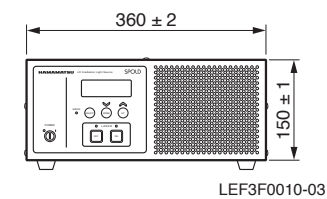
Reliable acquisition of the thermal information at the laser processing point improves the quality control of laser processing.

## ■Specifications

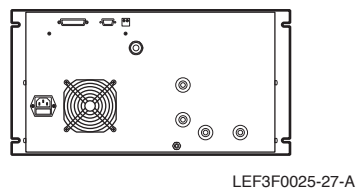
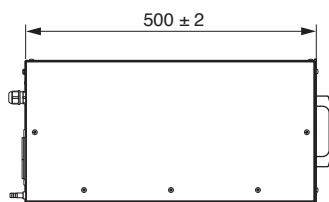
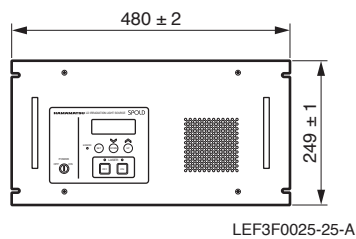
| Parameter                                    |                     | Specification   |             | Unit |
|--|---------------------|---|-------------|------|
|  |                     | L13920-411M   | L13920-511M |      |
| Radiant power (with maximum current setting) |                     | 30 (min.)   | 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 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 | φ0.6 to φ6.4  |             | mm   |
|  | Working distance    | Approx. 45 to 200   |             | mm   |

Figure 1: Dimensions (unit: mm)

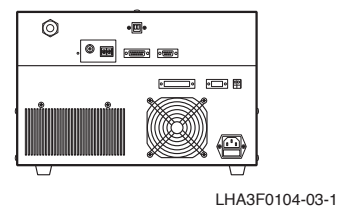
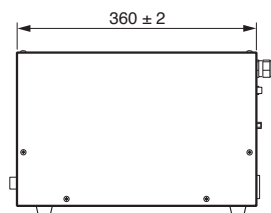
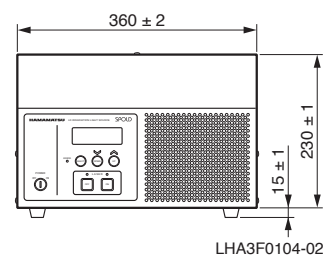
### ●L13920-xxx (excluding -711)



### ●L13920-711



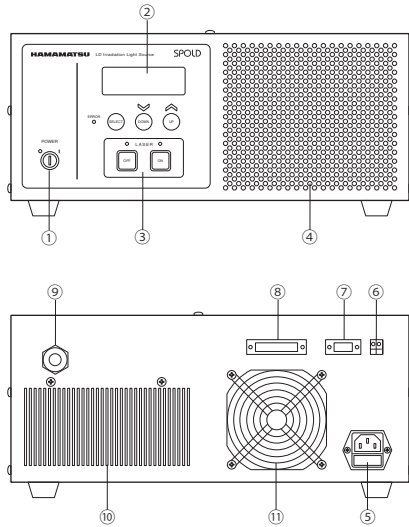
### ●L13920-x11M



# SPOLD® LD Irradiation unit Light Source L13920 series

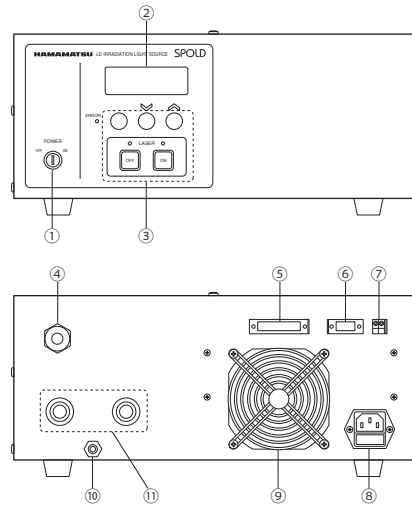
Figure 2: Name and function

## ●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   |

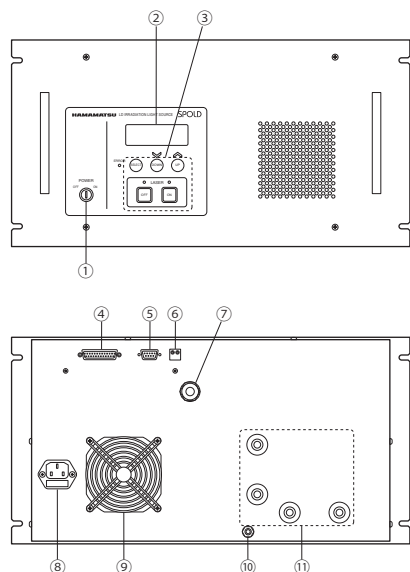
## ●L13920-611



| 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 external 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 $\phi 8$ mm horse connection tube  |
| ⑪   | Cooling water inlet/outlet                          | $\phi 8$ mm tube connection fitting  |

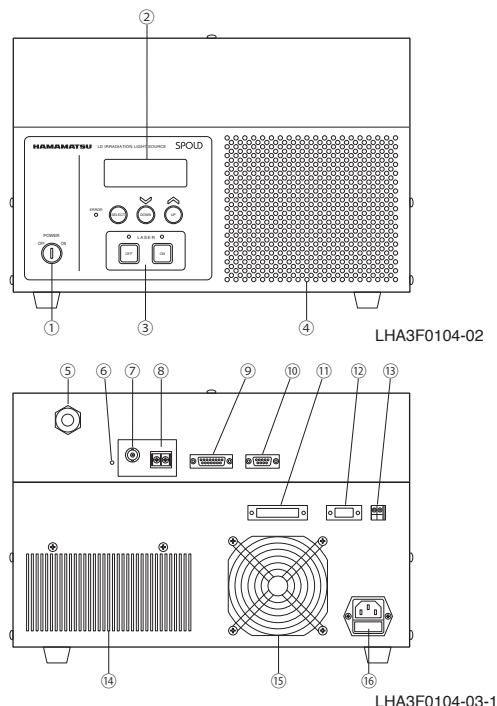
# SPOLD® LD Irradiation Light Source L13920 series

## ●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 hose connection tube   |
| ⑪   | Cooling water inlet/outlet                          | $\phi$ 8 mm tube connection fitting  |

## ●L13920-x11M



| 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 maintenance  |
| ⑪   | Laser external control signal input/output terminal | Input terminal for laser external control  |
| ⑫   | Serial communication terminal                       | Not used, for maintenance  |
| 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)                      |

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

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