

## LRS-0473 DPSS Laser System



### Series Specifications:

|                    |        |
|--------------------|--------|
| Nominal Wavelength | 473 nm |
| Output Type        | CW     |
| Laser Source Type  | DPSS   |

### Overview:

The LRS-0473 Series of Diode-Pumped Solid-State (DPSS) Lasers are ideal for applications requiring 1 mW to 1500 mW of 473 nm laser light with a high level of long-term output power stability and long operating lifetime at an aggressively competitive cost.

These lasers are commonly used for fluorescence excitation, optogenetics, PIV, Raman Spectroscopy, laser display and a broad spectrum of other applications. The driver is available as a complete FDA-compliant system or as an O.E.M. component with significantly reduced dimensions.

Available with TTL and Analog modulation, and in a wide array of output power and stability levels, Laserglow products are currently being used by some of the world's top universities and other prominent research facilities.

### Key Features:

- Air cooled - no need for water cooling or external chiller
- Lightweight, compact design
- Efficient DPSS technology runs on standard AC power (85 - 264 V, 47 - 63 Hz)
- >10,000 hours continuous maintenance-free operating life
- TTL and Analog modulation (input via BNC connector) *lab-spec models only*
- Specially-tuned for clean modulation responses from 1-100 Hz (*on selected models*)
- Adjustable output power (via lockable dial) *lab-spec models only*
- LED display showing LD current, laser cavity temperature *lab-spec models only*
- FDA CDRH Compliant Class IIIb / Class IV enclosure
- 48-hour replacement coverage available for an additional fee on specific models

### Package Includes:

- Laser Head
- Driver/Power Supply
- Power Cable
- BNC Connector (LabSpec models only)
- Keys, Safety Interlock
- Hard-shell Carrying Case

## Specifications:

This spec sheet has been generated specifically for part number R47-NB, per your request, and data for the entire series is also displayed for your reference. The specs which are specific to R47-NB have been highlighted below in **red + bold**.

| Laser Form Factor                               | M                 | O                                    | SS             | F                         | N                           | <b>NB</b>                               | W        |
|---|-------------------|--------------------------------------|----------------|---------------------------|-----------------------------|---|----------|
| Output Power (mW)                               | <5, >50, >100     | <5, >10, >50,<br>>200, >300,<br>>500 | >10, >50, >100 | >200, >300,<br>>400, >500 | >600, >800,<br>>1000, >1500 | <b>&gt;2000, &gt;3000,<br/>&gt;5000</b> | >2000    |
| Output Power Stability (%RMS/4h)                | <1, <3, <5, <10   | <1                                   | <3, <5         | <2, <3, <5, <10           | <1, <2, <3, <5              | <b>&lt;1, &lt;2, &lt;3, &lt;5</b>       | <3, <5   |
| FDA Safety Class                                | IIIa, IIIb        | IIIa, IIIb, IV                       | IIIb           | IIIb, IV                  | IV                          | <b>IV</b>                               | IV       |
| Central Wavelength (nm)                         | 472.58            | 472.58                               | 472.58         | 472.58                    | 472.58                      | <b>472.58</b>                           | 472.58   |
| Wavelength Tolerance (+/- nm)                   | 1                 | 1                                    | 1              | 1                         | 1                           | <b>1</b>                                | 1        |
| Divergence (mrad, full angle)                   | <1.5              | <1.5                                 | <1.5           | <1.5                      | <1.2                        | <b>&lt;1.2</b>                          | <1       |
| Beam Dimensions (mm, 1/e <sup>2</sup> )         | 1.2, 2            | 1.2, 2, 3                            | 0.8            | 3                         | 2, 3                        | <b>3</b>                                | 3        |
| Transverse Mode                                 | TEM00             | TEM00                                | TEM00          | Near TEM00                | TEM00                       | <b>Near TEM00</b>                       | TEM00    |
| Longitudinal Modes                              | Multiple          | Multiple                             | Multiple       | Multiple                  | Multiple                    | <b>Multiple</b>                         | Multiple |
| Warm-up Time (minutes)                          | 10                | 10                                   | 5              | 10                        | 10                          | <b>10</b>                               | 10       |
| Optical Noise Amplitude (%RMS @ 20 Hz - 20 MHz) | <30               | <30                                  | <30            | <30                       | <30                         | <b>&lt;30</b>                           | <30      |
| Spectral Linewidth (nm)                         | <0.15             | <0.15                                | <0.15          |                           |                             |   |          |
| M <sup>2</sup>                                  | <1.2              | <1.5, <2                             | <1.2           | <2                        | <1.5, <3                    | <b>&lt;5</b>                            | <1.5     |
| Polarization Ratio                              | >100              | >100                                 | >100           | >100                      | >100                        | <b>&gt;100</b>                          | >100     |
| Beam Pointing Stability (mrad)                  | <0.05             | <0.05                                | <0.05          | <0.05                     | <0.05                       |   |          |
| IP rating                                       |                   |                                      | 67             |                           |                             |   |          |
| Lateral Shock Tolerance (G's/6ms)               |                   |                                      | 7              |                           |                             |   |          |
| Vertical Shock Tolerance (G's/6ms)              |                   |                                      | 15             |                           |                             |   |          |
| Operating Temperature Range (°C)                | 10 to 35          | 10 to 35                             | 1 to 60        | 10 to 35                  | 20 to 30                    | <b>10 to 35</b>                         | 20 to 30 |
| Storage Temperature Range (°C)                  | -10 to            | -10 to                               | -10 to         | -10 to                    | -10 to                      | <b>-10 to 50</b>                        | -10 to   |
| Max. Analog Modulation Freq. (Hz)               | 150, 30000        | 150, 30000                           | 30000          | 150, 30000                | 30000                       | <b>30000</b>                            | 30000    |
| Max. TTL Modulation Freq. (Hz)                  | 150, 10000, 30000 | 150, 30000                           | 30000          | 150, 10000, 30000         | 30000                       | <b>30000</b>                            | 30000    |
| Modulation Input Signal                         | 0-5 VDC           | 0-5 VDC                              | 0-5 VDC        | 0-5 VDC                   | 0-5 VDC                     | <b>0-5 VDC</b>                          | 0-5 VDC  |
| Total Power Consumption (W)                     | 20, 25            | 20, 80                               | 30             | 80                        |                             |   |          |

CW: All specifications are based on performance at full output power and after the specified warmup period. Output characteristics may change if the laser is run at a different power level.

Q-Switched: Specifications are based on the laser pulsing at the specified design frequency. Output characteristics may change if the laser is run at a different frequency.

## Specifications Page 2:


| Laser Form Factor                | M                             | O                         | SS                        | F                           | N                         | <b>NB</b>                        | W                           |
|----------------------------------|-------------------------------|---------------------------|---------------------------|-----------------------------|---------------------------|----------------------------------|-----------------------------|
| Max. Power Input Duty Cycle      | 100%                          | 100%                      | 100%                      | 100%                        | 100%                      | <b>100%</b>                      | 100%                        |
| Cooling Method                   | TEC                           | TEC                       | TEC                       | TEC/Forced Air              | TEC/Forced Air            | <b>TEC/Forced Air</b>            | TEC/Forced Air              |
| Standard Warranty (months)       | 12                            | 12                        | 12                        | 12                          | 12                        | <b>12</b>                        | 12                          |
| MTTF (operational hours)         | 10000                         | 10000                     | 10000                     | 10000                       | 10000                     | <b>10000</b>                     | 10000                       |
| Weight of Laser Head (kg)        | 0.6                           | 2                         |                           | 1.6                         | 2.6                       | <b>2.6</b>                       | 6.1                         |
| Beam Height from Base Plate (mm) | 24.8                          | 27.4                      | 19                        | 45                          | 68.2                      | <b>68.2</b>                      | 93.5                        |
| Laser Head Dimensions (mm)       | 140.8 (l) x 73 (w) x 46.2 (h) | 197 (l) x 70 (w) x 50 (h) | 100 (l) x 50 (w) x 38 (h) | 211.5 (l) x 88 (w) x 74 (h) | 240 (l) x 99 (w) x 94 (h) | <b>240 (l) x 99 (w) x 94 (h)</b> | 346 (l) x 140 (w) x 125 (h) |


CW: All specifications are based on performance at full output power and after the specified warmup period. Output characteristics may change if the laser is run at a different power level.

Q-Switched: Specifications are based on the laser pulsing at the specified design frequency. Output characteristics may change if the laser is run at a different frequency.

## Power Supply Options:

These lasers are available with several different power supply options. The model that you have selected is highlighted below, and any other options are shown for easy reference.

|   | Power Supply Type:       | <b>SM</b>                  | <b>SF</b>                   |
|---|--------------------------|----------------------------|-----------------------------|
|  | Input Power              | 85v to 264v                | 85v to 264v                 |
|   | Power Supply Weight (kg) | 1.2                        | 2.3                         |
|   | Dimensions (mm)          | 133 (l) x 130 (w) x 65 (h) | 238 (l) x 146 (w) x 102 (h) |

|   | Power Supply Type:       | <b>FM</b>                  | <b>FF</b>                   | <b>FN</b>                          | <b>FO</b>                   | <b>FS</b>                  |
|---|--------------------------|----------------------------|-----------------------------|------------------------------------|-----------------------------|----------------------------|
|  | Input Power              | 85v to 264v                | 85v to 264v                 | <b>85v to 264v</b>                 | 85v to 264v                 | 85v to 264v                |
|   | Power Supply Weight (kg) | 1.5                        | 2.6                         | <b>2.6</b>                         | 2.6                         | 1.5                        |
|   | Dimensions (mm)          | 154 (l) x 155 (w) x 95 (h) | 268 (l) x 145 (w) x 106 (h) | <b>268 (l) x 145 (w) x 106 (h)</b> | 268 (l) x 145 (w) x 106 (h) | 154 (l) x 155 (w) x 95 (h) |

\*Power supply may not be exactly as shown, see dimensional drawings on next 2 pages.

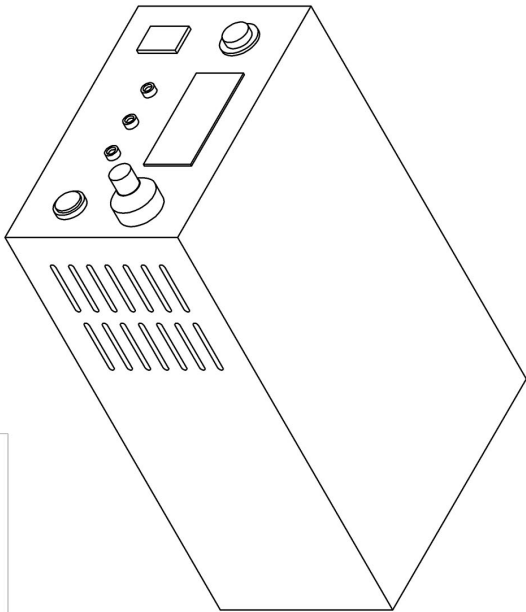
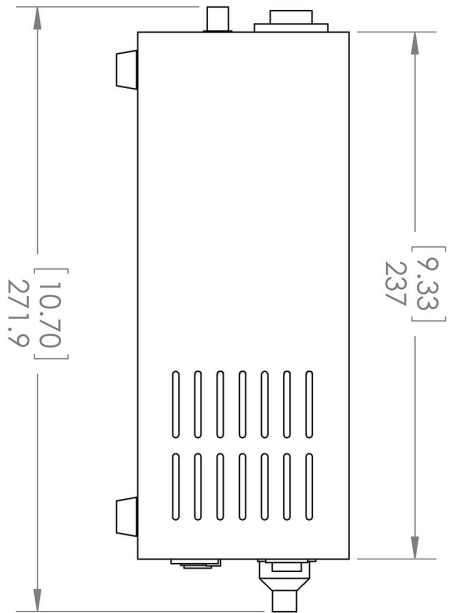
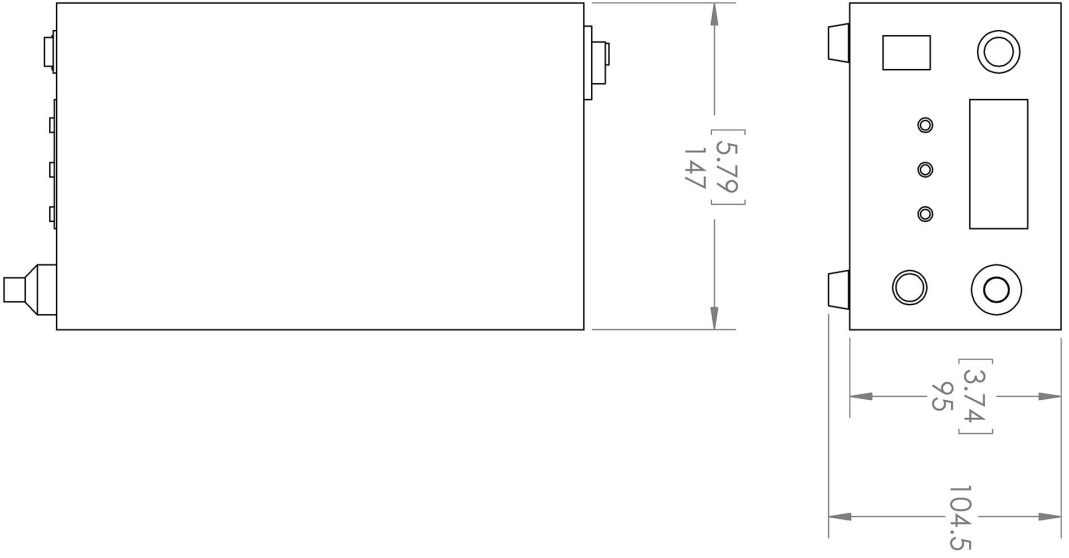
\*Dimensions for fiber-integrated (l\_) include laser head packaged inside.

## Regulatory Classification:

The model you have selected (R47-NB) requires the following safety label(s):



**Dimensional Drawing - Power Supply Form Factor: FN:**



UNLESS OTHERWISE SPECIFIED:  
 DIMENSIONS ARE IN MM(INCH)  
 TOLERANCES: +/- 0.75 MM







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|   |              |
|---|--------------|
| TITLE:<br><b>Power Supply</b><br><b>FH/FF/FN</b><br>REV 1 |              |
| SCALE: 1:3  | SHEET 1 OF 1 |

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## Accessories:

The most popular accessories for model R47-NB are shown below. For additional details regarding these or other accessories please see our website or contact us directly.

| Part Number   | Description   |  |
|---|---|--|
| <br>ACFVISHXA  | FC/PC Fiber Coupler/Collimator for visible spectrum wavelengths (400 to 700 nm) (installed and aligned)<br>11mm diameter input lens<br>Full Details: <a href="http://www.laserglow.com/ACF">www.laserglow.com/ACF</a>   |  |
| <br>AFF2002XX  | Armored Fiber With FC/PC Connectors 200um Core Multimode 2m length<br>Full Details: <a href="http://www.laserglow.com/AFF">www.laserglow.com/AFF</a>  |  |
| <br>AFS2002XX  | Armored Fiber With SMA 905 Connectors 200um Core Multimode 2 m length<br>Full Details: <a href="http://www.laserglow.com/AFS">www.laserglow.com/AFS</a>   |  |
| <br>AGF5327XX  | LSG-532-NF-7 Fit-Over Safety Goggles 532nm<br>Output: OD 7+ at 190-532 nm<br>CE Certified<br>Full Details: <a href="http://www.laserglow.com/AGF">www.laserglow.com/AGF</a>   |  |
| <br>ACSVISHXA | SMA-905 Fiber Coupler/Collimator for visible spectrum wavelengths (400 to 700 nm) (installed and aligned)<br>11mm diameter input lens<br>Full Details: <a href="http://www.laserglow.com/ACS">www.laserglow.com/ACS</a> |  |
| <br>TBK      | Complete optics kits with breadboard mounting hardware.<br>External modulators, variable attenuators, free-space fiber launch systems<br>Full Details: <a href="http://www.laserglow.com/TBK">www.laserglow.com/TBK</a> |  |

## FOR MORE INFORMATION PLEASE CONTACT:

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E&OE: Data included in this sheet may be subject to change without notice.

Please confirm critical specifications with our staff prior to ordering.