

## LED4D194 - February 25, 2015

Item # LED4D194 was discontinued February 25, 2015. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

### 4-WAVELENGTH HIGH-POWER LED SOURCE

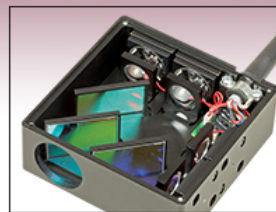
- ▶ 4-Wavelength LED Source with Stable and Repeatable Emission
- ▶ LED Switching Controlled via Current
- ▶ Choose from 14 LEDs
- ▶ Liquid Light Guide and Microscope Adapters Available



**LED4D067**  
4-Wavelength High-Power LED Source



Ideally Operated by  
DC4100 or DC4104 Drivers



Internal View of a 4-Wavelength Source



**LED4B1**  
Adapter to Couple  
Liquid Light Guides to  
the 4-Wavelength Source

#### Overview

#### Features

- User-Configurable 4-Wavelength Source
- Precisely Defined Spectral Range (See the *LED Specs* Tab for Details)
- Switching and Intensity Adjustments via LED Current Settings
- Better Stability and Longer Life than Gas Discharge and Halogen Lamps
- No Moving Parts for Vibration-Free Operation
- Cooling Fins Provide Efficient Thermal Management
- Long Lifetime Light Source (See the *LED Specs* Tab for Details)
- Optional Adapters for Olympus, Nikon, Zeiss, and Leica Microscope Lightports
- Optional Adapter for Coupling to Liquid Light Guides (LLGs)

The LED4D 4-Wavelength High-Power LED Sources are ideal for applications requiring up to four wavelengths of light. These user-configurable light sources efficiently combine the output of all four LEDs into a single collimated beam. Together with a [DC4100 or DC4104 4-Channel LED Driver](#), the LED4D provides a reliable, versatile light source with LED switching and accurate intensity modulation of each individual LED. The source is vibration free, easy to operate, and has a long lifetime (see the Specs tab for details).

Compared to conventional non-LED sources such as halogen and gas discharge lamps, these 4-wavelength sources offer many advantages such as higher signal-to-noise ratios (due to narrow bandwidth emission), better stability, longer life, lower replacement costs, simple operation without maintenance cycles, and no active cooling requirements or thermal filtering due to minimal thermal loads. The LED current can be adjusted to quickly set the intensity via the DC4100 or DC4104 driver (sold separately) front panel or USB connection, making this source an ideal choice for microscopy applications where multiple wavelengths are required. The source can also be modulated using an external trigger connection on the DC4100 or DC4104 (see the [full web presentation](#) of these drivers for details).

The LEDs incorporated into these sources are characterized by high divergence. The light is guided through the system using mirrors, and the output is collimated with an aspheric condenser lens. This setup inherently leads to a reduction in the measured output power (as seen in the table to the right) compared to that of the bare LEDs. Thorlabs also offers [single-channel collimated LEDs](#), which have higher power outputs since wavelength-combining optics are not needed.

#### Adapters

Optional adapters are available for using the 4-wavelength LED source with liquid light guides or microscopes. The output aperture of these LED sources is internally SM2 (2.035"-40) threaded. For Olympus, Nikon, Zeiss, and Leica microscopes, SM2-threaded adapters are available that directly mount the 4-wavelength sources onto the microscope lightport (see [SM2-Threaded Microscope Adapters](#)). See below for a video that demonstrates how to install the source on an Olympus microscope.

Alternatively, the LED4B1 Adapter for Liquid Light Guides (LLGs) is used to couple light exiting the LED source into a LLG. It replaces the SM2-threaded output port with an aperture that is internally SM1 (1.035"-40) threaded. The adapter contains a collimating optic designed to focus light into the aperture of a LLG held by the appropriate LLG-to-SM1 adapter ([AD3LLG](#) for Ø3 mm core LLGs or [AD5LLG](#) for Ø5 mm core LLGs). More information on these adapters and Thorlabs' selection of liquid light guides can be found [here](#).

| LED Options        |                               |                                   |
|--------------------|-------------------------------|-----------------------------------|
| Nominal Wavelength | Color<br>(Click for Spectrum) | Min LED Output Power <sup>a</sup> |
| 365 nm             | <a href="#">UV</a>            | 85 mW                             |
| 385 nm             | <a href="#">UV</a>            | 95 mW                             |
| 405 nm             | <a href="#">UV</a>            | 290 mW                            |
| 420 nm             | <a href="#">Violet</a>        | 30 mW                             |
| 455 nm             | <a href="#">Royal Blue</a>    | 310 mW                            |
| 470 nm             | <a href="#">Blue</a>          | 250 mW                            |
| 490 nm             | <a href="#">Blue</a>          | 50 mW                             |
| 505 nm             | <a href="#">Cyan</a>          | 170 mW                            |
| 530 nm             | <a href="#">Green</a>         | 100 mW                            |
| 565 nm             | <a href="#">Green Yellow</a>  | 106 mW                            |
| 590 nm             | <a href="#">Amber</a>         | 65 mW                             |
| 617 nm             | <a href="#">Orange</a>        | 210 mW                            |
| 625 nm             | <a href="#">Red</a>           | 240 mW                            |
| 660 nm             | <a href="#">Deep Red</a>      | 210 mW                            |

a. Power output from 4-wavelength source using this LED.

| General Specifications                   |  |
|--|--|
| Operating Temperature Range <sup>a</sup> | 0 °C to 40 °C (32 °F to 104 °F)                                    |
| Storage Temperature Range                | -40 °C to 70 °C (-49 °F to 158 °F)                                 |
| Dimensions (W x H x D)                   | 164 mm x 150 mm x 57 mm (Without Cable)<br>(6.46" x 5.91" x 2.24") |
| Front Aperture Thread                    | Internal SM2 (2.035"-40)   |
| Weight                                   | 1.6 kg (3.5 lbs)   |

a. Non-Condensing



[Click to Enlarge](#)

### Wavelength Combinations

Each LED4D source contains four individual high-power bare LEDs. Use the configurator below to build your LED4D 4-wavelength source by choosing from the 14 available LEDs listed in the table to the right. Due to the optical configuration, certain wavelengths cannot be combined within the same source. As you select each wavelength in the configurator, unavailable wavelength pairs will be excluded from each consecutive drop down menu.

Additional limitations imposed by the full configuration are outlined in the table to the right. Each combination of two wavelengths that cannot be included in the same 4-wavelength source is marked in grey, while available combinations are indicated by a green- or orange-shaded cell. The latter denotes a wavelength pair where the selection of the final two LEDs is further limited: LEDs with wavelengths below 455 nm cannot be included in an LED4D source with 660 nm, 617 nm, and 590 nm or 565 nm as the other three wavelengths. The configurator below is designed so that you cannot order a source with an unavailable wavelength configuration.

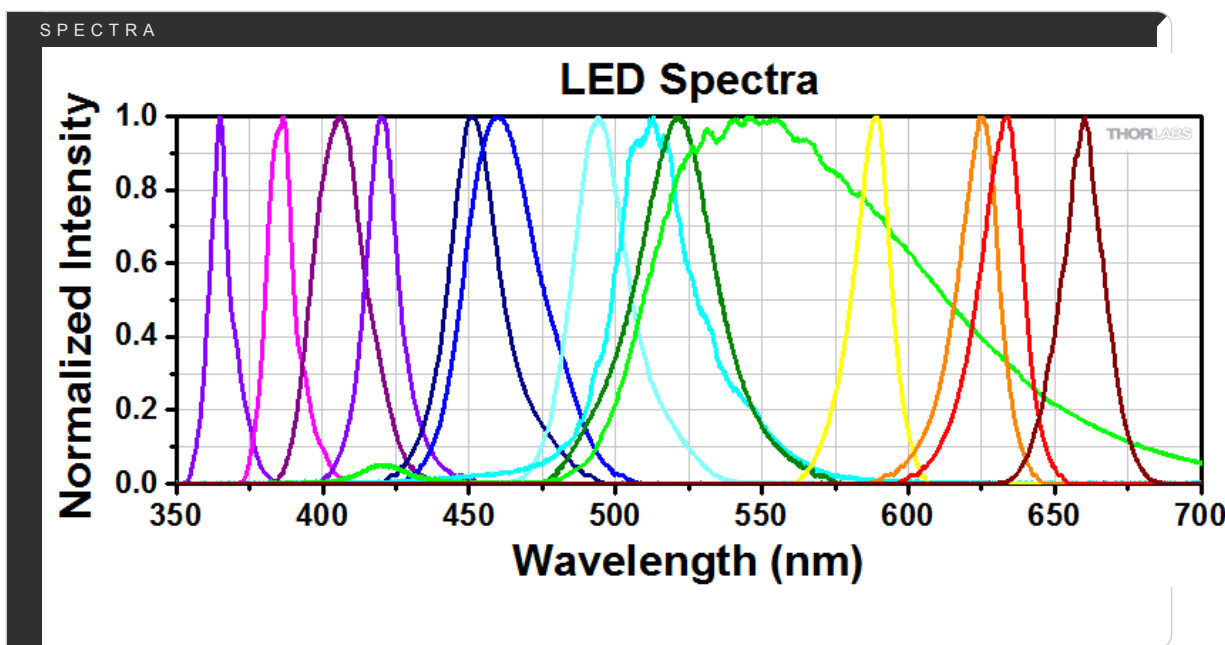
| Legend |   |
|--------|---|
| X      | Unavailable Wavelength Combination          |
|        | Available Wavelength Combination            |
|        | Limited Combinations Available <sup>a</sup> |

a. LED4D sources with wavelength combinations of 565 nm, 617 nm, and 660 nm or 590 nm, 617 nm, and 660 nm are only available with a fourth wavelength of 455 nm or higher.

| Wavelength Combinations |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                         | 365 nm | 385 nm | 405 nm | 420 nm | 455 nm | 470 nm | 490 nm | 505 nm | 530 nm | 565 nm | 590 nm | 617 nm | 625 nm | 660 nm |
| 365 nm                  | X      | X      | X      | X      |        |        |        |        |        |        |        |        |        |        |
| 385 nm                  | X      | X      | X      | X      |        |        |        |        |        |        |        |        |        |        |
| 405 nm                  | X      | X      | X      | X      |        |        |        |        |        |        |        |        |        |        |
| 420 nm                  | X      | X      | X      | X      |        |        |        |        |        |        |        |        |        |        |
| 455 nm                  |        |        |        |        | X      | X      | X      |        |        |        |        |        |        |        |
| 470 nm                  |        |        |        |        | X      | X      | X      |        |        |        |        |        |        |        |
| 490 nm                  |        |        |        |        | X      | X      | X      | X      |        |        |        |        |        |        |
| 505 nm                  |        |        |        |        |        |        | X      | X      | X      | X      |        |        |        |        |
| 530 nm                  |        |        |        |        |        |        |        | X      | X      | X      |        |        |        |        |
| 565 nm                  |        |        |        |        |        |        |        | X      | X      | X      | X      |        |        |        |
| 590 nm                  |        |        |        |        |        |        |        |        | X      | X      | X      | X      |        |        |
| 617 nm                  |        |        |        |        |        |        |        |        |        |        |        | X      | X      | X      |
| 625 nm                  |        |        |        |        |        |        |        |        |        |        |        |        | X      | X      |
| 660 nm                  |        |        |        |        |        |        |        |        |        |        |        |        |        | X      |

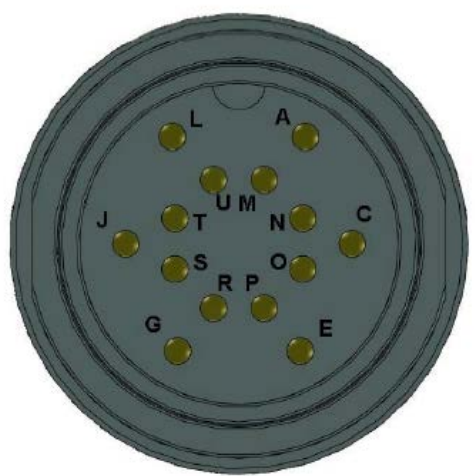
| LED SPECS          |                            |                                       |                      |                 |                  |                  |
|--------------------|----------------------------|---------------------------------------|----------------------|-----------------|------------------|------------------|
| Nominal Wavelength | Color (Click for Spectrum) | Minimum LED Output Power <sup>a</sup> | Maximum Current (CW) | Forward Voltage | Bandwidth (FWHM) | Typical Lifetime |
| 365 nm             | UV                         | 85 mW                                 | 700 mA               | 4.4 V           | 7.5 nm           | >10,000 h        |
| 385 nm             | UV                         | 95 mW                                 | 700 mA               | 4.3 V           | 10 nm            | >10,000 h        |
| 405 nm             | UV                         | 290 mW                                | 1000 mA              | 3.8 V           | 13 nm            | 100,000 h        |
| 420 nm             | Violet                     | 30 mW                                 | 500 mA               | 3.6 V           | 12 nm            | >10,000 h        |
| 455 nm             | Royal Blue                 | 310 mW                                | 1000 mA              | 3.2 V           | 18 nm            | 100,000 h        |
| 470 nm             | Blue                       | 250 mW                                | 1000 mA              | 3.2 V           | 25 nm            | 100,000 h        |
| 490 nm             | Blue                       | 50 mW                                 | 350 mA               | 3.5 V           | 27 nm            | >10,000 h        |
| 505 nm             | Cyan                       | 170 mW                                | 1000 mA              | 3.3 V           | 30 nm            | 100,000 h        |
| 530 nm             | Green                      | 100 mW                                | 1000 mA              | 3.2 V           | 33 nm            | 100,000 h        |
| 565 nm             | Green Yellow               | 106 mW                                | 1000 mA              | 3.1 V           | 104 nm           | 50,000 h         |
| 590 nm             | Amber                      | 65 mW                                 | 1000 mA              | 2.2 V           | 18 nm            | 100,000 h        |
| 617 nm             | Orange                     | 210 mW                                | 1000 mA              | 2.2 V           | 18 nm            | 100,000 h        |
| 625 nm             | Red                        | 240 mW                                | 1000 mA              | 2.2 V           | 18 nm            | 100,000 h        |
| 660 nm             | Deep Red                   | 210 mW                                | 1200 mA              | 2.5 V           | 25 nm            | >65,000 h        |

a. Power output from a 4-wavelength source using this LED.



PIN DIAGRAM

The LED4D has a flying lead terminated in a 14-pin M18 plug that is compatible with the DC4100 and DC4104 4-channel LED drivers. In the table below, LED A, LED B, LED C, and LED D denote each LED included in the source, ordered from shortest to longest wavelength.



| Pin | Description             | Comment    |
|-----|-------------------------|------------|
| A   | LED A Anode             | -          |
| C   | LED A Cathode           | -          |
| E   | LED B Anode             | -          |
| G   | LED C Anode             | -          |
| J   | LED C Cathode           | -          |
| L   | LED D Anode             | -          |
| M   | LED A 1 Wire EEPROM I/O | Do Not Use |
| N   | DGND                    | Do Not Use |
| O   | Not Connected           | -          |
| P   | LED B Cathode           | -          |
| R   | Not Connected           | -          |
| S   | Not Connected           | -          |
| T   | Not Connected           | -          |
| U   | LED D Cathode           | -          |

## LLG INSTALLATION

Thorlabs' 4-Wavelength LED Source can be made compatible with Liquid Light Guide Adapter Installation our Liquid Light Guides (LLGs) with the addition of the LED4B1 adapter. The animation to the right and the text below detail the installation process.

Remove the SM2-threaded (2.035"-40) output port that comes installed on the 4-wavelength source by unscrewing the four M2.5 screws. Position the LED4B1 over the output of the 4-wavelength source so that the M2.5 counterbores line up with the tapped holes on the LED source housing. Use the M2.5 screws that came with the LED source to fasten the adapter in place.

Screw an SM1-to-LLG adapter (either the AD3LLG or AD5LLG, not included) into the SM1-threaded (1.035"-40) exit port of the LED4D1, and plug your LLG into the adapter. Tighten the setscrew on the side of the SM1-to-LLG adapter using a 0.05" hex key to secure the LLG in place.

[Hide 4-Wavelength LED Source](#)

### 4-Wavelength LED Source

To access the part number, documentation, and pricing for a 4-wavelength source, select four wavelengths in the configurator below. Pricing is identical regardless of the combination chosen, but part number will vary.

| Part Number | Description   | Price      | Availability |
|-------------|---|------------|--------------|
| LED4D001    | 4-Wavelength High-Power LED Head (365/455/505/590 nm) | \$2,570.00 | Lead Time    |
| LED4D002    | 4-Wavelength High-Power LED Head (365/455/505/617 nm) | \$2,570.00 | Lead Time    |
| LED4D003    | 4-Wavelength High-Power LED Head (365/455/505/625 nm) | \$2,570.00 | Lead Time    |
| LED4D004    | 4-Wavelength High-Power LED Head (365/455/505/660 nm) | \$2,570.00 | Lead Time    |
| LED4D005    | 4-Wavelength High-Power LED Head (365/455/530/590 nm) | \$2,570.00 | Lead Time    |
| LED4D006    | 4-Wavelength High-Power LED Head (365/455/530/617 nm) | \$2,570.00 | Lead Time    |
| LED4D007    | 4-Wavelength High-Power LED Head (365/455/530/625 nm) | \$2,570.00 | Lead Time    |
| LED4D008    | 4-Wavelength High-Power LED Head (365/455/530/660 nm) | \$2,570.00 | Lead Time    |
| LED4D012    | 4-Wavelength High-Power LED Head (365/455/590/617 nm) | \$2,570.00 | Lead Time    |
| LED4D013    | 4-Wavelength High-Power LED Head (365/455/590/625 nm) | \$2,570.00 | Lead Time    |
| LED4D014    | 4-Wavelength High-Power LED Head (365/455/590/660 nm) | \$2,570.00 | Lead Time    |
| LED4D015    | 4-Wavelength High-Power LED Head (365/455/617/660 nm) | \$2,570.00 | Lead Time    |
| LED4D016    | 4-Wavelength High-Power LED Head (365/470/505/590 nm) | \$2,570.00 | Lead Time    |
| LED4D017    | 4-Wavelength High-Power LED Head (365/470/505/617 nm) | \$2,570.00 | Lead Time    |
| LED4D018    | 4-Wavelength High-Power LED Head (365/470/505/625 nm) | \$2,570.00 | Lead Time    |
| LED4D019    | 4-Wavelength High-Power LED Head (365/470/505/660 nm) | \$2,570.00 | Lead Time    |
| LED4D020    | 4-Wavelength High-Power LED Head (365/470/530/590 nm) | \$2,570.00 | Lead Time    |
| LED4D021    | 4-Wavelength High-Power LED Head (365/470/530/617 nm) | \$2,570.00 | Lead Time    |
| LED4D022    | 4-Wavelength High-Power LED Head (365/470/530/625 nm) | \$2,570.00 | Lead Time    |
| LED4D023    | 4-Wavelength High-Power LED Head (365/470/530/660 nm) | \$2,570.00 | Lead Time    |
| LED4D027    | 4-Wavelength High-Power LED Head (365/470/590/617 nm) | \$2,570.00 | Lead Time    |
| LED4D028    | 4-Wavelength High-Power LED Head (365/470/590/625 nm) | \$2,570.00 | Lead Time    |
| LED4D029    | 4-Wavelength High-Power LED Head (365/470/590/660 nm) | \$2,570.00 | Lead Time    |
| LED4D030    | 4-Wavelength High-Power LED Head (365/470/617/660 nm) | \$2,570.00 | Lead Time    |
| LED4D031    | 4-Wavelength High-Power LED Head (365/490/530/590 nm) | \$2,570.00 | Lead Time    |
| LED4D032    | 4-Wavelength High-Power LED Head (365/490/530/617 nm) | \$2,570.00 | Lead Time    |
| LED4D033    | 4-Wavelength High-Power LED Head (365/490/530/625 nm) | \$2,570.00 | Lead Time    |
| LED4D034    | 4-Wavelength High-Power LED Head (365/490/530/660 nm) | \$2,570.00 | Lead Time    |
| LED4D038    | 4-Wavelength High-Power LED Head (365/490/590/617 nm) | \$2,570.00 | Lead Time    |
| LED4D039    | 4-Wavelength High-Power LED Head (365/490/590/625 nm) | \$2,570.00 | Lead Time    |
| LED4D040    | 4-Wavelength High-Power LED Head (365/490/590/660 nm) | \$2,570.00 | Lead Time    |
| LED4D041    | 4-Wavelength High-Power LED Head (365/490/617/660 nm) | \$2,570.00 | Lead Time    |
| LED4D042    | 4-Wavelength High-Power LED Head (365/505/590/617 nm) | \$2,570.00 | Lead Time    |
| LED4D043    | 4-Wavelength High-Power LED Head (365/505/590/625 nm) | \$2,570.00 | Lead Time    |
| LED4D044    | 4-Wavelength High-Power LED Head (365/505/590/660 nm) | \$2,570.00 | Lead Time    |
| LED4D045    | 4-Wavelength High-Power LED Head (365/505/617/660 nm) | \$2,570.00 | Lead Time    |
| LED4D046    | 4-Wavelength High-Power LED Head (365/530/590/617 nm) | \$2,570.00 | Lead Time    |
| LED4D047    | 4-Wavelength High-Power LED Head (365/530/590/625 nm) | \$2,570.00 | Lead Time    |
| LED4D048    | 4-Wavelength High-Power LED Head (365/530/590/660 nm) | \$2,570.00 | Lead Time    |
| LED4D049    | 4-Wavelength High-Power LED Head (365/530/617/660 nm) | \$2,570.00 | Lead Time    |
| LED4D050    | 4-Wavelength High-Power LED Head (385/455/505/590 nm) | \$2,570.00 | Lead Time    |
| LED4D051    | 4-Wavelength High-Power LED Head (385/455/505/617 nm) | \$2,570.00 | Lead Time    |
| LED4D052    | 4-Wavelength High-Power LED Head (385/455/505/625 nm) | \$2,570.00 | Lead Time    |
| LED4D053    | 4-Wavelength High-Power LED Head (385/455/505/660 nm) | \$2,570.00 | Lead Time    |
| LED4D054    | 4-Wavelength High-Power LED Head (385/455/530/590 nm) | \$2,570.00 | Today        |
| LED4D055    | 4-Wavelength High-Power LED Head (385/455/530/617 nm) | \$2,570.00 | Lead Time    |

|          |   |            |           |
|----------|---|------------|-----------|
| LED4D056 | 4-Wavelength High-Power LED Head (385/455/530/625 nm) | \$2,570.00 | Lead Time |
| LED4D057 | 4-Wavelength High-Power LED Head (385/455/530/660 nm) | \$2,570.00 | Lead Time |
| LED4D061 | 4-Wavelength High-Power LED Head (385/455/590/617 nm) | \$2,570.00 | Lead Time |
| LED4D062 | 4-Wavelength High-Power LED Head (385/455/590/625 nm) | \$2,570.00 | Lead Time |
| LED4D063 | 4-Wavelength High-Power LED Head (385/455/590/660 nm) | \$2,570.00 | Lead Time |
| LED4D064 | 4-Wavelength High-Power LED Head (385/455/617/660 nm) | \$2,570.00 | Lead Time |
| LED4D065 | 4-Wavelength High-Power LED Head (385/470/505/590 nm) | \$2,570.00 | Lead Time |
| LED4D066 | 4-Wavelength High-Power LED Head (385/470/505/617 nm) | \$2,570.00 | Lead Time |
| LED4D067 | 4-Wavelength High-Power LED Head (385/470/505/625 nm) | \$2,570.00 | Lead Time |
| LED4D068 | 4-Wavelength High-Power LED Head (385/470/505/660 nm) | \$2,570.00 | Lead Time |
| LED4D069 | 4-Wavelength High-Power LED Head (385/470/530/590 nm) | \$2,570.00 | Today     |
| LED4D070 | 4-Wavelength High-Power LED Head (385/470/530/617 nm) | \$2,570.00 | Lead Time |
| LED4D071 | 4-Wavelength High-Power LED Head (385/470/530/625 nm) | \$2,570.00 | Today     |
| LED4D072 | 4-Wavelength High-Power LED Head (385/470/530/660 nm) | \$2,570.00 | Lead Time |
| LED4D076 | 4-Wavelength High-Power LED Head (385/470/590/617 nm) | \$2,570.00 | Lead Time |
| LED4D077 | 4-Wavelength High-Power LED Head (385/470/590/625 nm) | \$2,570.00 | Lead Time |
| LED4D078 | 4-Wavelength High-Power LED Head (385/470/590/660 nm) | \$2,570.00 | Today     |
| LED4D079 | 4-Wavelength High-Power LED Head (385/470/617/660 nm) | \$2,570.00 | Lead Time |
| LED4D080 | 4-Wavelength High-Power LED Head (385/490/530/590 nm) | \$2,570.00 | Lead Time |
| LED4D081 | 4-Wavelength High-Power LED Head (385/490/530/617 nm) | \$2,570.00 | Lead Time |
| LED4D082 | 4-Wavelength High-Power LED Head (385/490/530/625 nm) | \$2,570.00 | Lead Time |
| LED4D083 | 4-Wavelength High-Power LED Head (385/490/530/660 nm) | \$2,570.00 | Lead Time |
| LED4D087 | 4-Wavelength High-Power LED Head (385/490/590/617 nm) | \$2,570.00 | Lead Time |
| LED4D088 | 4-Wavelength High-Power LED Head (385/490/590/625 nm) | \$2,570.00 | Lead Time |
| LED4D089 | 4-Wavelength High-Power LED Head (385/490/590/660 nm) | \$2,570.00 | Lead Time |
| LED4D090 | 4-Wavelength High-Power LED Head (385/490/617/660 nm) | \$2,570.00 | Lead Time |
| LED4D091 | 4-Wavelength High-Power LED Head (385/505/590/617 nm) | \$2,570.00 | Lead Time |
| LED4D092 | 4-Wavelength High-Power LED Head (385/505/590/625 nm) | \$2,570.00 | Today     |
| LED4D093 | 4-Wavelength High-Power LED Head (385/505/590/660 nm) | \$2,570.00 | Lead Time |
| LED4D094 | 4-Wavelength High-Power LED Head (385/505/617/660 nm) | \$2,570.00 | Lead Time |
| LED4D095 | 4-Wavelength High-Power LED Head (385/530/590/617 nm) | \$2,570.00 | Lead Time |
| LED4D096 | 4-Wavelength High-Power LED Head (385/530/590/625 nm) | \$2,570.00 | Lead Time |
| LED4D097 | 4-Wavelength High-Power LED Head (385/530/590/660 nm) | \$2,570.00 | Lead Time |
| LED4D098 | 4-Wavelength High-Power LED Head (385/530/617/660 nm) | \$2,570.00 | Lead Time |
| LED4D099 | 4-Wavelength High-Power LED Head (405/455/505/590 nm) | \$2,570.00 | Lead Time |
| LED4D100 | 4-Wavelength High-Power LED Head (405/455/505/617 nm) | \$2,570.00 | Lead Time |
| LED4D101 | 4-Wavelength High-Power LED Head (405/455/505/625 nm) | \$2,570.00 | Lead Time |
| LED4D102 | 4-Wavelength High-Power LED Head (405/455/505/660 nm) | \$2,570.00 | Lead Time |
| LED4D103 | 4-Wavelength High-Power LED Head (405/455/530/590 nm) | \$2,570.00 | Today     |
| LED4D104 | 4-Wavelength High-Power LED Head (405/455/530/617 nm) | \$2,570.00 | Lead Time |
| LED4D105 | 4-Wavelength High-Power LED Head (405/455/530/625 nm) | \$2,570.00 | Lead Time |
| LED4D106 | 4-Wavelength High-Power LED Head (405/455/530/660 nm) | \$2,570.00 | Lead Time |
| LED4D110 | 4-Wavelength High-Power LED Head (405/455/590/617 nm) | \$2,570.00 | Lead Time |
| LED4D111 | 4-Wavelength High-Power LED Head (405/455/590/625 nm) | \$2,570.00 | Lead Time |
| LED4D112 | 4-Wavelength High-Power LED Head (405/455/590/660 nm) | \$2,570.00 | Lead Time |
| LED4D113 | 4-Wavelength High-Power LED Head (405/455/617/660 nm) | \$2,570.00 | Lead Time |
| LED4D114 | 4-Wavelength High-Power LED Head (405/470/505/590 nm) | \$2,570.00 | Lead Time |
| LED4D115 | 4-Wavelength High-Power LED Head (405/470/505/617 nm) | \$2,570.00 | Lead Time |
| LED4D116 | 4-Wavelength High-Power LED Head (405/470/505/625 nm) | \$2,570.00 | Lead Time |
| LED4D117 | 4-Wavelength High-Power LED Head (405/470/505/660 nm) | \$2,570.00 | Lead Time |
| LED4D118 | 4-Wavelength High-Power LED Head (405/470/530/590 nm) | \$2,570.00 | Today     |
| LED4D119 | 4-Wavelength High-Power LED Head (405/470/530/617 nm) | \$2,570.00 | Today     |
| LED4D120 | 4-Wavelength High-Power LED Head (405/470/530/625 nm) | \$2,570.00 | Today     |
| LED4D121 | 4-Wavelength High-Power LED Head (405/470/530/660 nm) | \$2,570.00 | Lead Time |
| LED4D125 | 4-Wavelength High-Power LED Head (405/470/590/617 nm) | \$2,570.00 | Lead Time |
| LED4D126 | 4-Wavelength High-Power LED Head (405/470/590/625 nm) | \$2,570.00 | Today     |
| LED4D127 | 4-Wavelength High-Power LED Head (405/470/590/660 nm) | \$2,570.00 | Today     |
| LED4D128 | 4-Wavelength High-Power LED Head (405/470/617/660 nm) | \$2,570.00 | Lead Time |
| LED4D129 | 4-Wavelength High-Power LED Head (405/490/530/590 nm) | \$2,570.00 | Lead Time |
| LED4D130 | 4-Wavelength High-Power LED Head (405/490/530/617 nm) | \$2,570.00 | Lead Time |
| LED4D131 | 4-Wavelength High-Power LED Head (405/490/530/625 nm) | \$2,570.00 | Lead Time |
| LED4D132 | 4-Wavelength High-Power LED Head (405/490/530/660 nm) | \$2,570.00 | Lead Time |
| LED4D136 | 4-Wavelength High-Power LED Head (405/490/590/617 nm) | \$2,570.00 | Lead Time |
| LED4D137 | 4-Wavelength High-Power LED Head (405/490/590/625 nm) | \$2,570.00 | Lead Time |
| LED4D138 | 4-Wavelength High-Power LED Head (405/490/590/660 nm) | \$2,570.00 | Lead Time |



|          |   |            |           |
|----------|---|------------|-----------|
| LED4D215 | 4-Wavelength High-Power LED Head (470/590/617/660 nm) | \$2,570.00 | Lead Time |
| LED4D216 | 4-Wavelength High-Power LED Head (490/530/590/617 nm) | \$2,570.00 | Lead Time |
| LED4D217 | 4-Wavelength High-Power LED Head (490/530/590/625 nm) | \$2,570.00 | Lead Time |
| LED4D218 | 4-Wavelength High-Power LED Head (490/530/590/660 nm) | \$2,570.00 | Lead Time |
| LED4D219 | 4-Wavelength High-Power LED Head (490/530/617/660 nm) | \$2,570.00 | Lead Time |
| LED4D221 | 4-Wavelength High-Power LED Head (490/590/617/660 nm) | \$2,570.00 | Lead Time |
| LED4D222 | 4-Wavelength High-Power LED Head (505/590/617/660 nm) | \$2,570.00 | Lead Time |
| LED4D223 | 4-Wavelength High-Power LED Head (530/590/617/660 nm) | \$2,570.00 | Lead Time |
| LED4D229 | 4-Wavelength High-Power LED Head (365/455/565/617 nm) | \$2,570.00 | Lead Time |
| LED4D230 | 4-Wavelength High-Power LED Head (365/455/565/625 nm) | \$2,570.00 | Lead Time |
| LED4D231 | 4-Wavelength High-Power LED Head (365/455/565/660 nm) | \$2,570.00 | Lead Time |
| LED4D232 | 4-Wavelength High-Power LED Head (365/470/565/617 nm) | \$2,570.00 | Lead Time |
| LED4D233 | 4-Wavelength High-Power LED Head (365/470/565/625 nm) | \$2,570.00 | Lead Time |
| LED4D234 | 4-Wavelength High-Power LED Head (365/470/565/660 nm) | \$2,570.00 | Lead Time |
| LED4D235 | 4-Wavelength High-Power LED Head (365/490/565/617 nm) | \$2,570.00 | Lead Time |
| LED4D236 | 4-Wavelength High-Power LED Head (365/490/565/625 nm) | \$2,570.00 | Lead Time |
| LED4D237 | 4-Wavelength High-Power LED Head (365/490/565/660 nm) | \$2,570.00 | Lead Time |
| LED4D238 | 4-Wavelength High-Power LED Head (385/455/565/617 nm) | \$2,570.00 | Lead Time |
| LED4D239 | 4-Wavelength High-Power LED Head (385/455/565/625 nm) | \$2,570.00 | Lead Time |
| LED4D240 | 4-Wavelength High-Power LED Head (385/455/565/660 nm) | \$2,570.00 | Lead Time |
| LED4D241 | 4-Wavelength High-Power LED Head (385/470/565/617 nm) | \$2,570.00 | Lead Time |
| LED4D242 | 4-Wavelength High-Power LED Head (385/470/565/625 nm) | \$2,570.00 | Lead Time |
| LED4D243 | 4-Wavelength High-Power LED Head (385/470/565/660 nm) | \$2,570.00 | Lead Time |
| LED4D244 | 4-Wavelength High-Power LED Head (385/490/565/617 nm) | \$2,570.00 | Lead Time |
| LED4D245 | 4-Wavelength High-Power LED Head (385/490/565/625 nm) | \$2,570.00 | Lead Time |
| LED4D246 | 4-Wavelength High-Power LED Head (385/490/565/660 nm) | \$2,570.00 | Lead Time |
| LED4D247 | 4-Wavelength High-Power LED Head (405/455/556/617nm)  | \$2,570.00 | Lead Time |
| LED4D248 | 4-Wavelength High-Power LED Head (405/455/565/625 nm) | \$2,570.00 | Lead Time |
| LED4D249 | 4-Wavelength High-Power LED Head (405/455/565/660 nm) | \$2,570.00 | Lead Time |
| LED4D250 | 4-Wavelength High-Power LED Head (405/470/565/617 nm) | \$2,570.00 | Lead Time |
| LED4D251 | 4-Wavelength High-Power LED Head (405/470/565/625 nm) | \$2,570.00 | Lead Time |
| LED4D252 | 4-Wavelength High-Power LED Head (405/470/565/660 nm) | \$2,570.00 | Lead Time |
| LED4D253 | 4-Wavelength High-Power LED Head (405/490/565/617 nm) | \$2,570.00 | Lead Time |
| LED4D254 | 4-Wavelength High-Power LED Head (405/490/565/625 nm) | \$2,570.00 | Lead Time |
| LED4D255 | 4-Wavelength High-Power LED Head (405/490/565/660 nm) | \$2,570.00 | Lead Time |
| LED4D256 | 4-Wavelength High-Power LED Head (420/455/565/617 nm) | \$2,570.00 | Lead Time |
| LED4D257 | 4-Wavelength High-Power LED Head (420/455/565/625 nm) | \$2,570.00 | Lead Time |
| LED4D258 | 4-Wavelength High-Power LED Head (420/455/565/660 nm) | \$2,570.00 | Lead Time |
| LED4D259 | 4-Wavelength High-Power LED Head (420/470/565/617 nm) | \$2,570.00 | Lead Time |
| LED4D260 | 4-Wavelength High-Power LED Head (420/470/565/625 nm) | \$2,570.00 | Lead Time |
| LED4D261 | 4-Wavelength High-Power LED Head (420/470/565/660 nm) | \$2,570.00 | Lead Time |
| LED4D262 | 4-Wavelength High-Power LED Head (420/490/565/617 nm) | \$2,570.00 | Lead Time |
| LED4D263 | 4-Wavelength High-Power LED Head (420/490/565/625 nm) | \$2,570.00 | Lead Time |
| LED4D264 | 4-Wavelength High-Power LED Head (420/490/565/660 nm) | \$2,570.00 | Lead Time |
| LED4D265 | 4-Wavelength High-Power LED Head (470/565/617/660 nm) | \$2,570.00 | Lead Time |
| LED4D266 | 4-Wavelength High-Power LED Head (490/565/617/660 nm) | \$2,570.00 | Lead Time |
| LED4D268 | 4-Wavelength High-Power LED Head (455/565/617/660 nm) | \$2,570.00 | Lead Time |

[Hide Externally SM2-Threaded Microscope Adapters](#)

### Externally SM2-Threaded Microscope Adapters

These SM2-threaded mounting adapters allow the 4-wavelength LED source to be mounted on 4-Wavelength Source Installation on an Olympus Microscope or an Olympus, Leica, Nikon, or Zeiss Microscope. The video to the right demonstrates how to install the source on an Olympus microscope.

| Item #                   | LED4A1  | LED4A2  | LED4A4  | LED4A5  |
|--------------------------|---|---|---|---|
| (Click Photo to Enlarge) |  |  |  |  |
| Compatible Microscope    | Olympus   | Leica   | Zeiss   | Nikon Eclipse   |

| Part Number | Description   | Price   | Availability |
|-------------|---|---------|--------------|
| LED4A1      | Olympus BX or IX Microscope Lamphouse Port Adapter, External SM2 Threads, Silver Anodized | \$61.80 | Today        |
| LED4A2      | Leica DMI Microscope Lamphouse Port Adapter, External SM2 Threads, Silver Anodized        | \$61.80 | Today        |
| LED4A4      | Zeiss Axioskop Microscope Lamphouse Port Adapter, External SM2 Threads, Silver Anodized   | \$61.80 | Today        |

|        |   |          |       |
|--------|---|----------|-------|
| LED4A5 | Nikon Eclipse Ti Microscope Lamphouse Port Adapter, External SM2 Threads, Silver Anodized | \$104.00 | Today |
|--------|---|----------|-------|

[Hide Internally SM1-Threaded Adapter for Liquid Light Guides](#)

### Internally SM1-Threaded Adapter for Liquid Light Guides



The LED4B1 Adapter for Liquid Light Guides contains a collimating aspheric lens (Item # ACL2520-A) to focus light from the 4-wavelength LED source into a liquid light guide (LLG) held in the appropriate LLG-to-SM1 adapter (not included). We manufacture two of these adapters: the AD3LLG SM1 adapter for Ø3 mm core LLGs and the AD5LLG SM1 adapter for Ø5 mm core LLGs. Thorlabs' selection of liquid light guides can be found [here](#).

The LED4B1 has the same bolt pattern as the the 4-wavelength source's SM2-threaded collimating output port. To install, simply remove the SM2-threaded output port by unscrewing the four M2.5 screws and attach the LED4B1 adapter in its place using the same four screws. Detailed installation instructions may be found on the *LLG Installation* tab above.

| Output Power of 4-Wavelength LED Source with Liquid Light Guide Attached |                             |                             |                        |                             |                             |
|--|-----------------------------|-----------------------------|------------------------|-----------------------------|-----------------------------|
| LED Nominal Wavelength   | Power through LLG           |                             | LED Nominal Wavelength | Power through LLG           |                             |
|  | Ø3 mm Core, 6' (1.8 m) Long | Ø5 mm Core, 4' (1.2 m) Long |                        | Ø3 mm Core, 6' (1.8 m) Long | Ø5 mm Core, 4' (1.2 m) Long |
| 365 nm   | 35 mW                       | 110 mW                      | 505 nm                 | 70 mW                       | 150 mW                      |
| 385 nm   | 65 mW                       | 120 mW                      | 530 nm                 | 15 mW                       | 55 mW                       |
| 405 nm   | 110 mW                      | 330 mW                      | 565 nm                 | 57 mW                       | 93 mW                       |
| 420 nm   | 5 mW                        | 20 mW                       | 590 nm                 | 20 mW                       | 45 mW                       |
| 455 nm   | 105 mW                      | 250 mW                      | 617 nm                 | 80 mW                       | 150 mW                      |
| 470 nm   | 105 mW                      | 275 mW                      | 625 nm                 | 100 mW                      | 200 mW                      |
| 490 nm   | 10 mW                       | 30 mW                       | 660 nm                 | 100 mW                      | 190 mW                      |

| Part Number | Description  | Price    | Availability |
|-------------|--|----------|--------------|
| LED4B1      | Customer Inspired!Liquid Light Guide Adapter for the 4-Wavelength LED Source | \$133.00 | Today        |

[Hide Advanced 4-Channel LED Driver](#)

### Advanced 4-Channel LED Driver



- 4 Channels with Precise and Individual Current Adjustment
- Modulation Frequency: 0 - 100 kHz (Sine Wave)
- LED Current: 1 A (Max)
- Driving Voltage: 5 V (Max)

The DC4100 Series LED Driver is designed to conveniently control the LED4D Sources. [Click here](#) for more details.

| Part Number | Description   | Price      | Availability |
|-------------|---|------------|--------------|
| DC4100      | 4-Channel LED Driver, 1 Modulation Input, 1 A, 5 V                    | \$2,580.00 | Today        |
| DC4104      | Customer Inspired!4-Channel LED Driver, 4 Modulation Inputs, 1 A, 5 V | \$2,840.00 | Today        |

Visit the *4-Wavelength High-Power LED Source* page for pricing and availability information:  
[http://www.thorlabs.com/newgrouppage9.cfm?objectgroup\\_id=3836](http://www.thorlabs.com/newgrouppage9.cfm?objectgroup_id=3836)