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THORLABS

M405L3-C2 - Jul 09, 2021

Item # M405L3-C2 was discontinued on Jul 07, 2021. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

COLLIMATED LED LIGHT SOURCES FOR MICROSCOPY

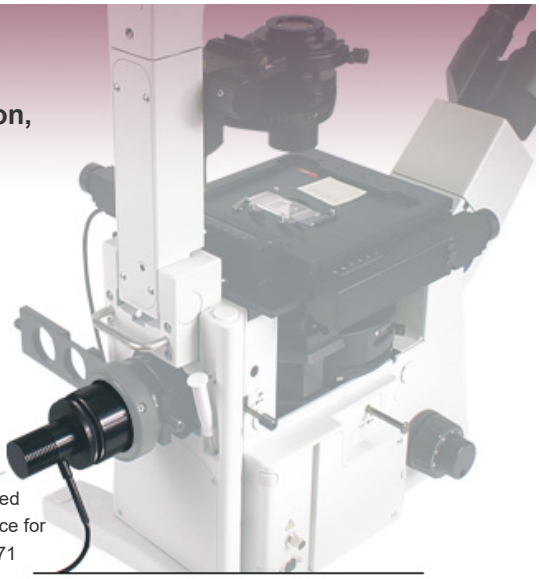
- **UV, Visible, and IR LEDs**
- **Mounted LED with Adjustable Collimation Optic**
- **Compatible with Epi-Illumination Port on Olympus, Leica, Nikon, and Zeiss Microscopes**

M625L4-C1
For Olympus BX/IX Microscopes

M405LP1-C2
For Leica DMI Microscopes

M590L4-C5
For Nikon Eclipse Microscopes

M810L3-C4
For Zeiss Axioskop Microscopes



M505L4-C1 Used as a Light Source for an Olympus IX71

OVERVIEW

Features

- Illumination Source for Microscope Epi-Illumination Ports, Projectors, and Custom Imaging Systems
- Optimized Thermal Management Provides Output Intensity Stability
- Adjustable Aspheric Collimation Optic with Low f/# (Approximately 0.8)
- Integrated Identification Chip (EEPROM) Stores LED Operating Parameters
- Higher Power LEDs Mounted to Larger Heat Sink with Ø57.0 mm Plastic Housing (See the Tables Below for Details)
- 4-Pin Female Mating Connector for Custom Power Supplies can be Purchased Separately
- Custom Adapters Available - Contact Tech Support for Details

Quick Links
LEDs for Olympus Microscopes
LEDs for Leica Microscopes
LEDs for Zeiss Microscopes
LEDs for Nikon Microscopes
Mounted LED Mating Connector

Thorlabs' collimated LED assemblies can be easily connected to standard and epi-illumination ports on most readily available commercial microscopes, including Olympus, Leica, Nikon, and Zeiss. Each collimated LED consists of a mounted LED and a lamphouse-port-compatible housing that contains an AR-coated aspheric collimation optic (see the *Specs* tab for details). If the wavelength or output power you require is not sold on this page, our mounted LEDs and Solis® High-Power LEDs are available in additional wavelengths and output powers.

Note: Please ensure your microscope is configured to directly accept an external light source. Some microscope assemblies have a permanently installed illuminator or may be otherwise incompatible with the LED light sources below.

The collimation of the beam can be adjusted by changing the position of the aspheric lens with respect to the LED. Interchanging LEDs is easy; simply unscrew one LED from the housing and replace it with a different mounted LED (sold separately). We also offer collimation packages, which can be purchased separately from these LEDs.

The approximate total beam power through the collimation adapter is given in the tables below and on the *Specs* tab. The actual power at the sample plane will be lower due to losses specific to the optical set up of the microscope. If you wish to measure the power at the sample plane for your particular microscope setup, Thorlabs also offers a microscope slide power meter sensor.

Like our mounted LEDs, the package of these collimated LEDs is in direct contact with the heat sink to provide excellent thermal management. This minimizes the degradation of optical output power caused by increased LED temperatures. Please see the *Stability* tab for information on the stable output intensity of these collimated LEDs. Additionally, our M365LP1, M385LP1, and M405LP1 LEDs feature a higher power output and are mounted to a larger Ø57.0 mm heat sink to increase heat dissipation and thermal stability.

For microscope applications requiring compatibility with SM1 (1.035"-40) threading, our mounted LEDs (sold separately) can be collimated using a Ø1" lens and lens tubes. This collimation method also allows for a smaller beam size than the collimators on this page. Please see the *Collimation* tab on our Mounted LEDs presentation for a detailed item list and instructions.

Compatible Controllers
Information concerning compatible controllers is provided on the *LED Drivers* tab. If the LED is driven with a DC2200, DC4100, or DC4104 controller, the integrated EEPROM chip will identify the LED and allow the controller to automatically set the proper current limit to protect the LED from being overdriven. The DC4100 and DC4104 require the DC4100-HUB when used with these LEDs.

Specs

Common LED Specifications[a]

Legend	
LED Mounted to a Heat Sink in a Ø57.0 mm Red Housing	LED Mounted to a Heat Sink in a Ø30.5 mm Black Housing

The section of the housing that holds the collimation optics is the same size for all LEDs that share the same item # suffix, regardless of the size of the heat sink.

Item # Prefix	Nominal Wavelength[b,c]	Color[b]	Min LED Power[b,d]	Typ. LED Power[b,d]	Max Drive Current (CW)	Irradiance (Typical)[d]	Electrical Power	Typical Lifetime	Emitter Size
M365L2[e]	365 nm	UV	190 mW	360 mW	700 mA	8.9 µW/mm^2	3.080 W	>10 000 h	1 mm x 1 mm
M365L3[e]	365 nm	UV	880 mW	1290 mW	1000 mA	14.4 µW/mm^2	3.850 W	>10 000 h	2.5 mm x 2.5 mm
M365LP1[e,f]	365 nm	UV	1350 mW	2000 mW	1700 mA	21.0 µW/mm^2	6.800 W	>10 000 h	2.5 mm x 2.5 mm
M385L2[e]	385 nm	UV	270 mW	430 mW	700 mA	11.8 µW/mm^2	3.010 W	>10 000 h	1 mm x 1 mm
M385L3[e]	385 nm	UV	1240 mW	1780 mW	1000 mA	19.9 µW/mm^2	3.700 W	>10 000 h	2.5 mm x 2.5 mm
M385LP1[e,f]	385 nm	UV	1650 mW	1830 mW	1700 mA	23.3 µW/mm^2	6.630 W	>10 000 h	1.4 mm x 1.4 mm
M405L3[e]	405 nm	UV	870 mW	980 mW	1000 mA	33.6 µW/mm^2	3.900 W	>100 000 h	1 mm x 1 mm
M405L4[e]	405 nm	UV	1000 mW	1300 mW	1000 mA	14.53 µW/mm^2	3.400 W	> 1 000 h	1.4 mm x 1.4 mm
M405LP1[e,f]	405 nm	UV	1500 mW	1700 mW	1400 mA	24.6 µW/mm^2	4.830 W	>10 000 h	1.4 mm x 1.4 mm
M455L3	455 nm	Royal Blue	900 mW	1020 mW	1000 mA	31.2 µW/mm^2	3.200 W	100 000 h	1 mm x 1 mm
M455L4	455 nm	Royal Blue	1150 mW	1445 mW	1000 mA	32 µW/mm^2	1.900 W	>100 000 h	1 mm x 1 mm
M470L4	470 nm	Blue	760 mW	965 mW	1000 mA	19.9 µW/mm^2	3.200 W	>100 000 h	1 mm x 1 mm
M505L3	505 nm	Cyan	400 mW	440 mW	1000 mA	11.1 µW/mm^2	3.300 W	100 000 h	1 mm x 1 mm
M505L4	505 nm	Cyan	400 mW	520 mW	1000 mA	5.94 µW/mm^2	3.500 mW	>100 000 h	1 mm x 1 mm
M530L4	530 nm	Green	370 mW	480 mW	1000 mA	9.46 µW/mm^2	3.600 W	>100 000 h	1 mm x 1 mm
M590L3	590 nm	Amber	160 mW	170 mW	1000 mA	5.3 µW/mm^2	2.200 W	100 000 h	1 mm x 1 mm
M590L4	590 nm	Amber	230 mW	300 mW	1000 mA	6.0 µW/mm^2	2.500 W	>100 000 h	1 mm x 1 mm
M617L3	617 nm	Orange	600 mW	650 mW	1000 mA	15.7 µW/mm^2	2.200 W	100 000 h	1 mm x 1 mm
M617L4	617 nm	Orange	660 mW	860 mW	1000 mA	19.86 µW/mm^2	2.600 W	>100 000 h	1 mm x 1 mm
M625L3	625 nm	Red	700 mW	770 mW	1000 mA	18.0 µW/mm^2	2.200 W	100 000 h	1 mm x 1 mm
M625L4	625 nm	Red	700 mW	920 mW	1000 mA	21.9 µW/mm^2	2.500 W	100 000 h	1 mm x 1 mm
M660L4	660 nm	Deep Red	940 mW	1050 mW	1200 mA	20.88 µW/mm^2	3.120 W	>10 000 h	1.5 mm x 1.5 mm
M780L3	780 nm	IR	200 mW	300 mW	800 mA	47.3 µW/mm^2	1.600 W	>10 000 h	1 mm x 1 mm
M810L3	810 nm	IR	325 mW	375 mW	500 mA	61.8 µW/mm^2	1.800 W	>10 000 h	1 mm x 1 mm
M850L3	850 nm	IR	900 mW	1100 mW	1200 mA	22.9 µW/mm^2	3.540 W	100 000 h	1 mm x 1 mm
M940L3	940 nm	IR	800 mW	1000 mW	1000 mA	19.1 µW/mm^2	2.750 W	100 000 h	1 mm x 1 mm
MCWHL5[g]	6500 K[h]	Cold White	800 mW	840 mW	1000 mA	24.8 µW/mm^2	3.200 W	100 000 h	1 mm x 1 mm
MCWHL6[g]	6500 K[h]	Cold White	990 mW	1430 mW	1200 mA	25.0 µW/mm^2	3.400 W	100 000 h	1 mm x 1 mm

- Specifications for the LEDs without collimating adapters are given in this table. Please see the second table on this tab for specifications pertaining to the LED with the collimating adapter attached.
- Due to variations in the manufacturing process and operating parameters such as temperature and current, the actual spectral output of any given LED will vary. Output plots and nominal wavelength specs are only intended to be used as a guideline.
- For LEDs in the visible spectrum, the nominal wavelength indicates the wavelength at which the LED appears brightest to the human eye. For UV and IR LEDs, the nominal wavelength corresponds to the peak wavelength. The nominal wavelength for visible LEDs may not correspond to the peak wavelength as measured by a spectrograph.
- For the bare LED. See the table below for total beam power with the collimation package.
- Our 365 nm to 405 nm LEDs radiate intense UV light during operation. Precautions must be taken to prevent looking directly at the UV light and UV light protective glasses must be worn to avoid eye damage. Exposure of the skin and other body parts to the UV light should be avoided.
- These LEDs have a higher output power (see tables below for total beam power) and are mounted to a Ø57.0 mm heat sink for increased heat dissipation.
- These LEDs may not turn off completely when modulated at frequencies above 5 kHz, as the white light is produced by optically stimulating emission from phosphor.
- Correlated color temperature. The wavelength range corresponding to >10% power is approximately 435 - 675 nm.

Specifications for LED with Collimating Microscope Adapter Attached

Legend	
LED Mounted to a Heat Sink in a Ø57.0 mm Red Housing	LED Mounted to a Heat Sink in a Ø30.5 mm Black Housing

The section of the housing that holds the collimation optics is the same size for all LEDs that share the same item # suffix, regardless of the size of the heat sink.

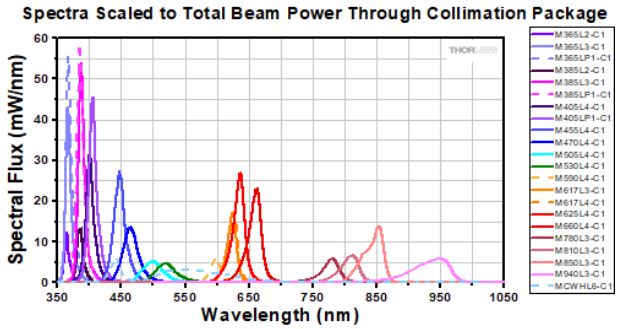
Item # Suffix		-C1	-C2	-C4	-C5
Compatible Microscope[a]		Olympus BX and IX	Leica DMI	Zeiss Axioskop and Examiner[b]	Nikon Eclipse (Bayonet Mount)
Beam Diameter[c,d]		50 mm	37 mm	44 mm	43 mm
Beam Area[c]		1960 mm²	1080 mm²	1520 mm²	1450 mm²
Item # Prefix	Included Collimation Lens	Total Beam Power[d]			
M365L2	ACL5040U-A	120 mW	60 mW	80 mW	80 mW
M365L3	ACL5040U-A	520 mW	320 mW	430 mW	320 mW
M365LP1	ACL5040U-A	745 mW	435 mW	615 mW	435 mW
M385L2	ACL5040U-A	170 mW	90 mW	110 mW	120 mW
M385L3	ACL5040U-A	680 mW	450 mW	570 mW	410 mW
M385LP1	ACL5040U-A	795 mW	520 mW	660 mW	630 mW
M405L3	ACL5040U-A	N/A	440 mW	600 mW	N/A
M405L4	ACL5040U-A	510 mW	N/A	N/A	N/A
M405LP1	ACL5040U-A	750 mW	450 mW	580 mW	570 mW
M455L3	ACL5040U-A	500 mW	N/A	430 mW	400 mW
M455L4	ACL5040U-A	630 mW	490 mW	690 mW	630 mW
M470L4	ACL5040U-A	420 mW	330 mW	460 mW	420 mW
M505L3	ACL5040U-A	N/A	150 mW	180 mW	N/A
M505L4	ACL5040U-A	220 mW	170 mW	240 mW	220 mW
M530L4	ACL5040U-A	200 mW	160 mW	220 mW	200 mW
M590L3	ACL5040U-A	N/A	N/A	70 mW	N/A
M590L4	ACL5040U-A	130 mW	100 mW	140 mW	130 mW
M617L3	ACL5040U-A	320 mW	230 mW	280 mW	260 mW
M617L4	ACL5040U-A	360 mW	280 mW	400 mW	360 mW
M625L3	ACL5040U-A	N/A	270 mW	N/A	300 mW
M625L4	ACL5040U-A	630 mW	490 mW	690 mW	630 mW
M660L4	ACL5040U-A	590 mW	400 mW	570 mW	520 mW
M780L3	ACL5040U-B	210 mW	130 mW	180 mW	170 mW
M810L3	ACL5040U-B	245 mW	210 mW	230 mW	225 mW
M850L3	ACL5040U-B	480 mW	330 mW	400 mW	370 mW
M940L3	ACL5040U-B	430 mW	320 mW	380 mW	340 mW
MCWHL5	ACL5040U-A	N/A	N/A	380 mW	340 mW
MCWHL6	ACL5040U-A	548 mW	354 mW	493 mW	477 mW

- Standard or Epi-Illumination Port Required.
- These adapters are compatible with any Zeiss microscopes that use the same dovetail as the Zeiss Axioskop and Examiner microscopes.
- Due to variations in the manufacturing process and operating parameters such as temperature and current, the total beam power, beam diameter, and beam area of any given LED will vary.
- At the output aperture of the collimation package.

Relative Power

The actual spectral output and total output power of any given LED will vary due to variations in the manufacturing process and operating parameters, such as temperature and current. The typical total beam power of each collimated LED is specified to help you select an LED that suits your needs. In order to provide a point of comparison for the relative powers of LEDs with different nominal wavelengths, the spectra in the plots below have been scaled to the typical total beam power of each collimated LED. This data is representative, not absolute. An Excel file containing the normalized and scaled spectra for each collimation package can be downloaded using the link below each plot.

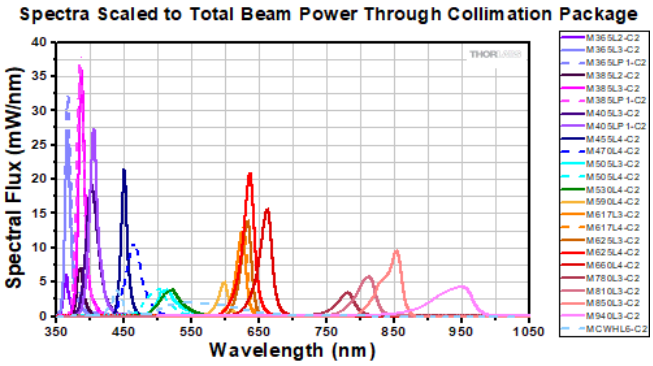
Collimated LEDs for Olympus BX and IX Microscopes



Click to Enlarge

An Excel file containing the data shown in the plot above may be found here.

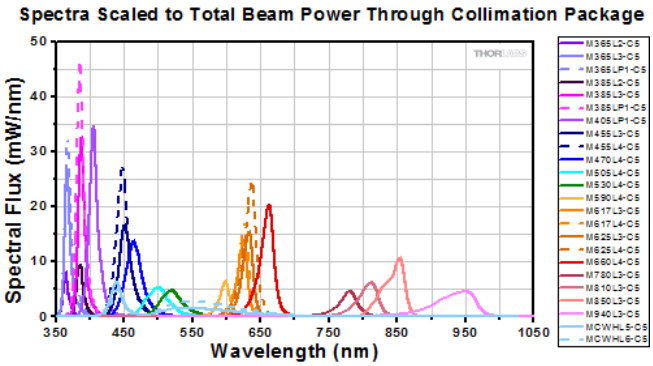
Collimated LEDs for Leica DMI Microscopes



Click to Enlarge

An Excel file containing the data shown in the plot above may be found here.

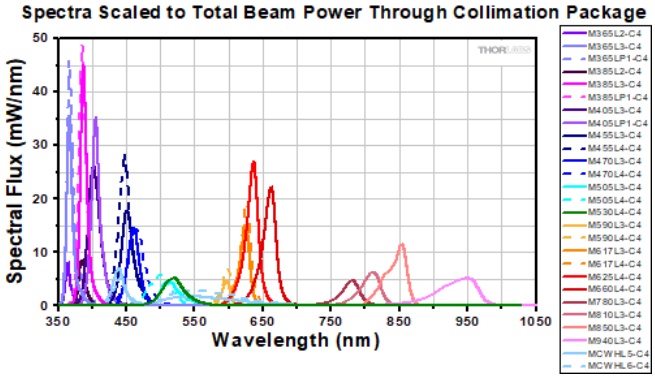
Collimated LEDs for Nikon Eclipse Microscopes



Click to Enlarge

An Excel file containing the data shown in the plot above may be found here.

Collimated LEDs for Zeiss Axioskop Microscopes



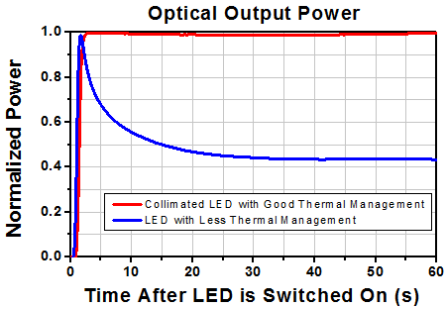
Click to Enlarge

An Excel file containing the data shown in the plot above may be found here.

STABILITY

LED Lifetime and Long-Term Power Stability

One characteristic of LEDs is that they naturally exhibit power degradation with time. Often this power degradation is slow, but there are also instances where large, rapid drops in power, or even complete LED failure, occur. LED lifetimes are defined as the time it takes a specified percentage of a type of LED to fall below some power level. The parameters for the lifetime measurement can be written using the notation B_{XX}/L_{YY}, where XX is the percentage of that type of LED that will provide less than YY percent of the specified output power after the lifetime has elapsed. Thorlabs defines the lifetime of our LEDs as B_{50}/L_{50}, meaning that 50% of the LEDs with a given Item # will fall below 50% of the initial optical power at the end of the specified lifetime. For example, if a batch of 100 LEDs is rated for 150 mW of output power, 50 of these LEDs can be expected to produce an output power of ≤75 mW after the specified LED lifetime has elapsed.



Click to Enlarge

Optimized Thermal Management

The thermal dissipation performance of these collimated LEDs has been optimized for stable power output. The heat sink is directly mounted to the LED mount so as to provide optimal thermal contact. By doing so, the degradation of optical output power that can be attributed to increased LED junction temperature is minimized (see the graph to the right).

PIN DIAGRAM

Pin Connection - Male

The diagram to the right shows the male connector of the collimated LED assembly. It is a standard M8 x 1 sensor circular connector. Pins 1 and 2 are the connection to the LED. Pin 3 and 4 are used for the internal EEPROM in these LEDs. If using an LED driver that was not purchased from Thorlabs, be careful that the appropriate connections are made to Pin 1 and Pin 2 and that you do not attempt to drive the LED through the EEPROM pins.

Pin	Specification	Color
1	LED Anode	Brown
2	LED Cathode	White
3	EEPROM GND	Black
4	EEPROM IO	Blue

LED DRIVERS

Compatible Drivers	LEDD1B	DC2200[a]	DC4100[a,b]	DC4104[a,b]
Click Photos to Enlarge				
LED Driver Current Output (Max)	1.2 A	LED1 Terminal: 10.0 A LED2 Terminal: 2.0 A[c]	1.0 A per Channel	1.0 A per Channel
LED Driver Forward Voltage (Max)	12 V	50 V	5 V	5 V
Modulation Frequency Using External Input (Max)	5 kHz	250 kHz[d,e]	100 kHz[e] (Simultaneous Across all Channels)	100 kHz[e] (Independently Controlled Channels)
External Control Interface(s)	Analog (BNC)	USB 2.0 and Analog (BNC)	USB 2.0 and Analog (BNC)	USB 2.0 and Analog (8-Pin)
Main Driver Features	Very Compact Footprint 60 mm x 73 mm x 104 mm (W x H x D)	Touchscreen Interface with Internal and External Options for Pulsed and Modulated LED Operation	4 Channels[b]	4 Channels[b]
EEPROM Compatible: Reads Out LED Data for LED Settings	-	✓	✓	✓
LCD Display	-	✓	✓	✓

- Automatically limits to LED's max current via EEPROM readout.
- The DC4100 or DC4104 can power and control up to four LEDs simultaneously when used with the DC4100-HUB. The LEDs on this page all require the DC4100-HUB when used with the DC4100 or DC4104.
- The collimated LEDs sold below are compatible with the LED2 Terminal.
- Small Signal Bandwidth: Modulation not exceeding 20% of full scale current. The driver accepts other waveforms, but the maximum frequency will be reduced.
- The MCWHL5-C LEDs may not turn off completely when modulated at frequencies above 5 kHz, as the white light is produced by optically stimulating emission from phosphor.

LED Selection Guide

Light Emitting Diode (LED) Selection Guide

(Click Representative Photo to Enlarge; Not to Scale)										
Wavelength	**Unmounted LEDs**	**Pigtailed LEDs**	**LEDs in SMT Packages**	**PCB-Mounted LEDs**	**Heatsink-Mounted LEDs**	**Collimated LEDs for Microscopy (Item # Prefix[a])**	**Fiber-Coupled LEDs[b]**	**High-Power LEDs for Microsocopy**	**Multi-Wavelength LED Source Options[c]**	**LED Arrays**
Single Color LEDs										
250 nm	LED250J (1 mW Min)	-	-	-	-	-	-	-	-	-
255 nm	LED255W (0.4 mW) LED255J (1 mW Min)	-	-	-	-	-	-	-	-	-
260 nm	LED260W (1 mW) LED260J (1 mW Min)	-	-	-	-	-	-	-	-	-
265 nm	LED265W2 (1.6 mW)	-	-	M265D2 (10 mW Min) M265D3 (24 mW Min)	M265L3 (10 mW Min)	-	-	-	-	-
275 nm	LED275W (1.6 mW) LED275J (1 mW Min)	-	-	M275D2 (45 mW Min) M275D3 (47.3 mW[d] Min)	M275L4 (45 mW Min)	-	-	-	-	-
280 nm	LED280W (2.3 mW)	-	-	-	-	-	-	-	-	-
285 nm	LED285W (1.6 mW)	-	-	M285D3 (50 mW Min)	M285L5 (50 mW Min)	-	M285F4 (590 µW)	-	-	-
290 nm	LED290W (1.6 mW)	-	-	-	-	-	-	-	-	-
295 nm	LED295W (1.2 mW)	-	-	-	-	-	-	-	-	-
300 nm	LED300W (1.2 mW)	-	-	M300D3 (26 mW Min)	M300L4 (26 mW Min)	-	M300F2 (320 µW)	-	-	-
308 nm	-	-	-	M310D1 (38.5 mW Min[d])	M310L1 (38.5 mW Min[d])	-	M310F1 (0.51 mW[d])	-	-	-
310 nm	LED310W (1.5 mW)	-	-	-	-	-	-	-	-	-
325 nm	LED325W2 (1.7 mW)	-	-	M325D3 (25 mW Min)	M325L5 (25 mW Min)	-	M325F4 (350 µW)	-	-	-
340 nm	LED340W (1.7 mW) LED341W (0.33 mW)	-	-	M340D3 (53 mW Min)	M340L4 (53 mW Min)	-	M340F3 (1.06 mW)	-	-	-
365 nm	-	-	-	M365D1 (190 mW Min)	M365L2 (190 mW Min) M365L3 (880 mW Min)	M365L2 (60 mW)[e]	M365F1 (4.1 mW)	SOLIS-365C (3.0 W)[f]	Chrolis (1130 mW)	LIU365 (31 mW
				M365D2 (1150 mW Min)	M365LP1 (1350 mW Min)	M365LP1 (350 mW)[e]	M365FP1 (15.5 mW)		4-Wavelength Source (85 mW)	

Light Emitting Diode (LED) Selection Guide										
375 nm	LED375L (1 mW) LED370E (2.5 mW)	-	-	M375D4 (1270 mW Min)	M375L4 (1270 mW Min)	-	M375F2 (4.23 mW)	-	-	-
385 nm	LED385L (5 mW)	-	-	M385D1 (270 mW Min)	M385L2 (270 mW Min) M385L3 (1240 mW Min)	M385L2 (90 mW)[e] M385L3 (450 mW)[e]	M385F1 (10.7 mW)	SOLIS-385C (5.8 W)[f]	Chrolis (1250 mW)	-
				M385D2 (1650 mW Min)	M385LP1 (1650 mW Min)	M385LP1 (520 mW)[e]	M385FP1 (23.2 mW)		4-Wavelength Source (95 mW)	
395 nm	LED395L (6 mW)	-	-	M395D3 (400 mW Min)	M395L4 (400 mW Min)	-	M395F3 (6.8 mW)	-	-	-
				M395D4 (1420 mW Min)	M395L5 (1130 mW Min) M395LP1 (1420 mW Min)		M395FP1 (29.8 mW)			
Wavelength	**Unmounted LEDs**	**Pigtailed LEDs**	**LEDs in SMT Packages**	**PCB-Mounted LEDs**	**Heatsink-Mounted LEDs**	**Collimated LEDs for Microscopy (Item # Prefix[a])**	**Fiber-Coupled LEDs[b]**	**High-Power LEDs for Microsocopy**	**Multi-Wavelength LED Source Options[c]**	**LED Arrays**
Single Color LEDs										
405 nm	LED405L (6 mW)	-	-	M405D2 (1500 mW Min)	M405L4 (1000 mW Min)	M405L3 (440 mW)[e] M405L4 (510 mW)[g]	M405F1 (3.7 mW)	SOLIS-405C (3.9 W)[f]	Chrolis (900 mW)	-
	LED405E (10 mW)				M405LP1 (1200 mW Min)	M405LP1 (450 mW)[e]	M405FP1 (24.3 mW)		4-Wavelength Source (290 mW)	
415 nm	-	-	-	M415D2 (1640 mW Min)	M415L4 (1310 mW Min) M415LP1 (1640 mW Min)	-	M415F3 (21.3 mW)	SOLIS-415C (5.8 W)[f]	-	-
420 nm	-	-	-	-	-	-	-	-	Chrolis (710 mW) 4-Wavelength Source (95 mW)	-
430 nm	LED430L (8 mW)	-	-	M430D2 (490 mW Min)	M430L4 (490 mW Min)	-	-	-	-	-
445 nm	-	-	-	-	-	-	-	SOLIS-445C (5.4 W)[f]	-	-
450 nm	LED450L (7 mW)	-	LEDS450 (250 mW)	M450D3 (1850 mW Min)	M450LP1 (1850 mW Min)	-	-	-	-	-
455 nm	-	-	-	M455D3 (1150 mW Min)	M455L4 (1150 mW Min)	M455L3 (400 mW)[h] M455L4 (490 mW)[e]	M455F3 (24.5 mW)	-	4-Wavelength Source (310 mW)	-
465 nm	LED465E (20 mW)	-	-	-	-	-	-	-	-	-
470 nm	LED470L (170 mW)	EP470S04 (18 mW Min) EP470S10 (100 mW Min)	-	M470D3 (760 mW Min)	M470L4 (760 mW Min)	M470L4 (330 mW)[e]	M470F3 (21.8 mW)	SOLIS-470C (3.0 W)[f]	4-Wavelength Source (250 mW)	LIU470 (253 mW
475 nm	-	-	-	-	-	-	-	-	Chrolis (630 mW)	-

Light Emitting Diode (LED) Selection Guide										
490 nm	LED490L (3 mW)	-	-	M490D3 (205 mW Min)	M490L4 (205 mW Min)	-	M490F3 (3.1 mW)	-	Chrolis (120 mW) 4-Wavelength Source (50 mW)	-
505 nm	LED505L (4 mW)	-	-	M505D2 (400 mW Min) M505D3 (400 mW Min)	M505L4 (400 mW Min)	M505L3 (150 mW)[e] M505L4 (170 mW)[e]	M505F3 (11.7 mW)	SOLIS-505C (1.0 W)[f]	4-Wavelength Source (170 mW)	-
525 nm	LED525E (2.6 mW Max) LED525L (4 mW) LED528EHP (7 mW)	-	-	-	-	-	-	SOLIS-525C (2.4 W)[f]	Chrolis (180 mW)	LIU525 (111 mW
530 nm	-	-	-	M530D3 (370 mW Min)	M530L4 (370 mW Min)	M530L4 (160 mW)[e]	M530F2 (9.6 mW)	-	4-Wavelength Source (100 mW)	-
545 nm	LED545L (2.4 mW CW, 8.7 mW Pulsed)	-	-	-	-	-	-	-	-	-
554 nm	-	-	-	MINTD3 (650 mW Min)	MINTL5 (650 mW Min)	-	MINTF4 (28 mW)	-	-	-
562 nm	LED560L (0.15 mW[d])	-	-	-	-	-	-	-	-	-
565 nm	-	-	-	M565D2 (880 mW Min)	M565L3 (880 mW Min)	-	M565F3 (13.5 mW)	SOLIS-565C (3.2 W)[f]	Chrolis (350 mW) 4-Wavelength Source (106 mW)	-
570 nm	LED570L (0.3 mW)	-	-	-	-	-	-	-	-	-
590 nm	LED590L (2 mW) LED591E (2 mW)	EP590S04 (3.5 mW Min) EP590S10 (18 mW Min)	-	M590D3 (230 mW Min)	M590L4 (230 mW Min)	M590L3 (60 mW)[e] M590L4 (100 mW)[e]	M590F3 (4.6 mW)	SOLIS-590C (350 mW)[f]	Chrolis (140 mW) 4-Wavelength Source (65 mW)	LIU590 (109 mW
595 nm	-	-	-	M595D3 (820 mW Min)	M595L4 (820 mW Min)	-	M595F2 (11.5 mW)	SOLIS-595C (700 mW)[f]	-	-
Wavelength	**Unmounted LEDs**	**Pigtailed LEDs**	**LEDs in SMT Packages**	**PCB-Mounted LEDs**	**Heatsink-Mounted LEDs**	**Collimated LEDs for Microscopy (Item # Prefix[a])**	**Fiber-Coupled LEDs[b]**	**High-Power LEDs for Microsocopy**	**Multi-Wavelength LED Source Options[c]**	**LED Arrays**
Single Color LEDs										
600 nm	LED600L (3 mW)	-	-	-	-	-	-	-	-	-
610 nm	LED610L (8 mW)	-	-	-	-	-	-	-	-	-
617 nm	-	-	-	M617D2 (600 mW Min) M617D3 (660 mW Min)	M617L3 (600 mW Min) M617L4 (660 mW Min)	M617L3 (230 mW)[e] M617L4 (280 mW)[e]	M617F2 (13.2 mW)	SOLIS-617C (1.5 mW)[f]	4-Wavelength Source (210 mW)	-
623 nm	-	-	-	-	-	-	-	SOLIS-623C (3.8 W)[f]	-	-

Light Emitting Diode (LED) Selection Guide										
625 nm	LED625L (12 mW)	-	-	M625D3 (700 mW Min)	M625L4 (700 mW Min)	M625L3 (270 mW)[e] M625L4 (490 mW)[e]	M625F1 (17.5 mW)	-	Chrolis (490 mW) 4-Wavelength Source (240 mW)	-
630 nm	LED630L (16 mW)	-	-	-	-	-	-	-	-	LIU630 (208 mW
635 nm	LED631E (4 mW) LED635L (170 mW)	-	-	-	-	-	-	-	-	-
639 nm	LED630E (7.2 mW)	-	-	-	-	-	-	-	-	-
645 nm	LED645L (16 mW)	-	-	-	-	-	-	-	-	-
660 nm	LED660L (13 mW)	-	-	M660D2 (940 mW Min)	M660L4 (940 mW Min)	M660L4 (400 mW)[e]	M660F1 (15.5 mW)	SOLIS-660C (2.0 W)[f]	4-Wavelength Source (210 mW)	-
670 nm	LED670L (12 mW)	-	-	-	-	-	-	-	-	-
680 nm	LED680L (8 mW)	-	-	M680D2 (180 mW Min)	M680L4 (180 mW Min)	-	M680F3 (2.7 mW)	-	-	-
700 nm	-	EP700S04 (5 mW Min) EP700S10 (30 mW Min)	-	M700D2 (80 mW Min)	M700L4 (80 mW Min)	-	M700F3 (1.7 mW)	-	-	-
730 nm	-	-	-	M730D3 (540 mW Min)	M730L5 (540 mW Min)	-	-	-	-	-
740 nm	-	-	-	-	-	-	M740F2 (6.0 mW)	SOLIS-740C (2.0 W)[f]	-	-
750 nm	LED750L (18 mW)	-	-	-	-	-	-	-	-	-
760 nm	LED760L (24 mW)	-	-	-	-	-	-	-	-	-
770 nm	LED770L (22 mW)	-	-	-	-	-	-	-	-	-
780 nm	LED780E (18 mW) LED780L (22 mW)	-	-	M780D2 (200 mW Min) M780D3 (800 mW Min)	M780L3 (200 mW Min) M780LP1 (800 mW Min)	M780L3 (130 mW)[e]	M780F2 (7.5 mW)	-	Chrolis (40 mW)	LIU780 (315 mW
800 nm	LED800L (20 mW)	-	-	-	-	-	-	-	-	-
810 nm	LED810L (22 mW)	EP810S04 (16 mW Min) EP810S10 (90 mW Min)	-	M810D2 (325 mW Min) M810D3 (363 mW Min)	M810L3 (325 mW Min) M810L4 (363 mW Min)	M810L3 (210 mW)[e]	M810F2 (6.5 mW)	-	-	-
830 nm	LED830L (22 mW)	-	-	-	-	-	-	-	-	-
840 nm	LED840L (22 mW)	-	-	-	-	-	-	-	-	-
850 nm	LED851L (13 mW)	-	-	M850D2 (900 mW Min) M850D3 (1400 mW)	M850L3 (900 mW Min) M850LP1 (1400 mW Min)	M850L3 (330 mW)[e]	M850F3 (8.6 mW Min)[d]	SOLIS-850C (2.7 W)[f]	-	LIU850 (322 mW
870 nm	LED870E (22 mW) LED870L (24 mW)	-	-	-	-	-	-	-	-	-

Light Emitting Diode (LED) Selection Guide										
880 nm	-	-	-	M880D2 (300 mW Min)	M880L3 (300 mW Min)	-	M880F2 (3.4 mW)	-	-	-
890 nm	LED890L (12 mW)	-	-	-	-	-	-	-	-	-
910 nm	LED910L (10 mW)	-	-	-	-	-	-	-	-	-
	LED910E (12 mW)									
930 nm	LED930L (15 mW)	-	-	-	-	-	-	-	-	-
940 nm	LED940E (18 mW)	-	-	M940D2 (800 mW Min)	M940L3 (800 mW Min)	M940L3 (320 mW)[e]	M940F3 (14.2 mW)	SOLIS-940C (2.5 W)[f]	-	-
970 nm	LED970L (5 mW)	-	-	M970D3 (600 mW Min)	M970L4 (600 mW Min)	-	M970F3 (8.1 mW)	-	-	-
Wavelength	**Unmounted LEDs**	**Pigtailed LEDs**	**LEDs in SMT Packages**	**PCB-Mounted LEDs**	**Heatsink-Mounted LEDs**	**Collimated LEDs for Microscopy (Item # Prefix[a])**	**Fiber-Coupled LEDs[b]**	**High-Power LEDs for Microsocopy**	**Multi-Wavelength LED Source Options[c]**	**LED Arrays**
Single Color LEDs										
1050 nm	LED1050E (2.5 mW)	-	-	M1050D1 (50 mW Min)	M1050L2 (50 mW Min)	-	-	-	-	-
	LED1050L (4 mW)			M1050D3 (160 mW Min)	M1050L4 (160 mW Min)		M1050F3 (3 mW)			
	LED1050L2 (8 mW[d])			-	-		-			
1070 nm	LED1070L (4 mW)	-	-	-	-	-	-	-	-	-
	LED1070E (7.5 mW)									
1085 nm	LED1085L (5 mW)	-	-	-	-	-	-	-	-	-
1100 nm	-	-	-	M1100D1 (168 mW[d] Min)	M1100L1 (168 mW[d] Min)		M1100F1 (5.4 mW[d])			
1200 nm	LED1200E (2.5 mW)	-	-	M1200D2 (30 mW Min)	M1200L3 (30 mW Min)	-	-	-	-	-
	LED1200L (5 mW)									
1300 nm	LED1300E (2 mW)	-	-	M1300D2 (25 mW Min)	M1300L3 (25 mW Min)	-	-	-	-	-
	LED1300L (3.5 mW)									
1450 nm	LED1450E (2 mW)	-	-	M1450D2 (31 mW Min)	M1450L3 (31 mW Min)	-	-	-	-	-
	LED1450L (5 mW)									
1550 nm	LED1550E (2 mW)	-	-	M1550D2 (31 mW Min)	M1550L3 (31 mW Min)	-	-	-	-	-
	LED1550L (4 mW)									
1600 nm	LED1600L (2 mW)	-	-	-	-	-	-	-	-	-
1650 nm	LED1600P (1.2 mW)	-	-	M1650D2 (13 mW Min)	M1650L4 (13 mW Min)	-	-	-	-	-
1750 nm	LED1700P (1.2 mW Quasi-CW, 30 mW Pulsed)	-	-	-	-	-	-	-	-	-

Light Emitting Diode (LED) Selection Guide										
1850 nm	LED1800P (0.9 mW Quasi-CW, 20 mW Pulsed)	-	-	-	-	-	-	-	-	-
1950 nm	LED1900P (1.0 mW Quasi-CW, 25 mW Pulsed)	-	-	-	-	-	-	-	-	-
2050 nm	LED2050P (1.1 mW Quasi-CW, 28 mW Pulsed)	-	-	-	-	-	-	-	-	-
2350 nm	LED2350P (0.8 mW Quasi-CW, 16 mW Pulsed)	-	-	-	-	-	-	-	-	-
2700 nm	LED2700W (0.15 mW Quasi-CW, 1.0 mW Pulsed)	-	-	-	-	-	-	-	-	-
2800 nm	LED2800W (0.3 mW Quasi-CW, 2.0 mW Pulsed)	-	-	-	-	-	-	-	-	-
3400 nm	LED3400W (0.3 mW Quasi-CW, 2.0 mW Pulsed)	-	-	-	-	-	-	-	-	-
3800 nm	LED3800W (0.18 mW Quasi-CW, 1.5 mW Pulsed)	-	-	-	-	-	-	-	-	-
4200 nm	LED4300P (0.03 mW Quasi-CW, 0.2 mW Pulsed)	-	-	-	-	-	-	-	-	-
4300 nm	LED4300W (0.18 mW Quasi-CW, 1.5 mW Pulsed)	-	-	-	-	-	-	-	-	-
4500 nm	LED4600P (0.006 mW Quasi-CW, 0.12 mW Pulsed)	-	-	-	-	-	-	-	-	-
Wavelength	**Unmounted LEDs**	**Pigtailed LEDs**	**LEDs in SMT Packages**	**PCB-Mounted LEDs**	**Heatsink-Mounted LEDs**	**Collimated LEDs for Microscopy (Item # Prefix[a])**	**Fiber-Coupled LEDs[b]**	**High-Power LEDs for Microsocopy**	**Multi-Wavelength LED Source Options[c]**	**LED Arrays**
Multi-Color, Broadband, and White LEDs										
455 nm (12.5%[i]) and 640 nm	-	-	-	MPRP1D2 (275 mW Min)	MPRP1L4 (275 mW Min)	-	-	-	-	-
572 nm and 625 nm	LEDGR (0.09 mW and 0.19 mW)	-	-	-	-	-	-	-	-	-

Light Emitting Diode (LED) Selection Guide										
588 nm and 617 nm	LEDRY (0.09 mW and 0.19 mW)	-	-	-	-	-	-	-	-	-
467.5 nm, 525 nm, and 627.5 nm	LEDRGBE (5.8 mW, 6.2 mW, and 3.1 mW)	-	-	-	-	-	-	-	-	-
430 - 660 nm (White)	LEDWE-15 (13 mW) LEDW7E (15.0 mW) LEDW25E (15.0 mW)	-	-	-	-	-	-	-	-	-
6500 K (Cold White)	-	-	-	MCWHD5 (930 mW Min) MCWHD4 (990 mW Min) MCWHD3 (2350 mW Min)	MCWHL7 (930 mW Min) MCWHL6 (990 mW Min) MCWHLP1 (2350 mW Min)	- MCWHL5 (340 mW)[h] MCWHL6 (354 mW)[e]	-	SOLIS-1C (3.3 W)[f]	-	-
6200 K (Cold White)	-	-	-	-	-	-	MCWHF2 (27.0 mW)	-	-	-
5000 K (Cold White)	-	-	LEDSW50 (110 mW)	-	-	-	-	-	-	-
4600 - 9000 K (Cold White)	-	-	-	-	-	-	-	-	-	LIUCWH (250 mW
4000 K (Warm White)	-	-	LEDSW40 (115 mW)	-	-	-	MWWHF2 (23.1 mW)	-	-	-
3000 K (Warm White)	-	-	LEDSW30 (100 mW)	MWWHD3 (2000 mW Min)	MWWHL4 (570 mW Min) MWWHLP1 (2000 mW Min)	-	-	SOLIS-2C (3.2 W)[f]	-	-
5700 K (Day Light White)	-	-	-	-	-	-	-	SOLIS-3C (3.5 W)	-	-
470 - 850 nm (Broadband)	-	-	-	MBB1D1 (70 mW Min)	MBB1L3 (70 mW Min)	-	MBB1F1 (1.2 mW)	-	-	-
770 nm, 860 nm, & 940 nm (Broadband)	-	-	-	MBB2D1 (740 mW[d] Min)	MBB2L1 (650 mW[d] Min) MBB2LP1 (740 mW[d] Min)	-	-	-	-	-

- These Collimated LEDs are compatible with the standard and epi-illumination ports on the following microscopes: Olympus BX/IX (Item # Suffix: -C1), Leica DMI (Item # Suffix: -C2), Zeiss Axioskop (Item # Suffix: -C4), and Nikon Eclipse (Bayonet Mount, Item # Suffix: -C5).
- Typical power when used with MM Fiber with Ø400 µm core, 0.39 NA.
- Our Multi-Wavelength LED Sources are available with select combinations of the LEDs at these wavelengths.
- Measured at 25 °C
- Typical power for LEDs with the Leica DMI collimation package (Item # Suffix: -C2).
- Minimum power for the collimated output of these LEDs. The collimation lens is installed with each LED.
- Typical power for LEDs with the Olympus BX and IX collimation package (Item # Suffix: -C1).
- Typical power for LEDs with the Nikon Eclipse collimation package (Item # Suffix: -C5).
- Percentage of LED intensity that emits in the blue portion of the spectrum, from 400 nm to 525 nm.

Collimated LED Light Sources for Olympus BX and IX Microscopes

- Approximate Beam Diameter: 50 mm
- Approximate Beam Area: 1960 mm²
- AR-Coated Aspheric Collimation Lens (EFL: 40 mm)
- See the *Specs* Tab for a Complete List of Specifications
- Cable Length: 2 m

Item #	Color[a]	Housing	Total Beam Power[b]
M365L2-C1	UV		120 mW
M365L3-C1	UV		520 mW
M365LP1-C1[c]	UV		745 mW
M385L2-C1	UV		170 mW
M385L3-C1	UV		680 mW
M385LP1-C1[c]	UV		795 mW
M405L4-C1	UV		510 mW
M405LP1-C1[c]	UV		750 mW
M455L4-C1	Royal Blue		630 mW
M470L4-C1	Blue		420 mW
M505L4-C1	Cyan		220 mW

Item #	Color[a]	Housing	Total Beam Power[b]
M530L4-C1	Green		200 mW
M590L4-C1	Amber		130 mW
M617L3-C1	Orange		320 mW
M617L4-C1	Orange		360 mW
M625L4-C1	Red		630 mW
M660L4-C1	Deep Red		590 mW
M780L3-C1	IR		210 mW
M810L3-C1	IR		245 mW
M850L3-C1	IR		480 mW
M940L3-C1	IR		430 mW
MCWHL6-C1	Cold White		548 mW

- Due to variations in the manufacturing process and operating parameters such as temperature and current, the actual spectral output of any given LED will vary. Output plots are only intended to be used as a guideline.
- After collimation package. Due to variations in the manufacturing process and operating parameters such as temperature and current, the total beam power of any given LED will vary.
- These LEDs have a higher output power and are mounted to a Ø57.0 mm heat sink for increased heat dissipation.

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Part Number	Description	Price	Availability
M365L2-C1	365 nm, 120 mW (Typ.) Collimated LED for Olympus BX & IX, 700 mA	$450.00	Today
M365L3-C1	365 nnm, 520 mW (Typ.) Collimated LED for Olympus BX & IX, 1000 mA	$557.68	Today
M365LP1-C1	365 nm, 745 mW (Typ.) Collimated LED for Olympus BX & IX, 1700 mA	$653.68	Today
M385L2-C1	385 nm, 170 mW (Typ.) Collimated LED for Olympus BX & IX, 700 mA	$450.00	Today
M385L3-C1	385 nm, 680 mW (Typ.) Collimated LED for Olympus BX & IX, 1000 mA	$577.85	5-8 Days
M385LP1-C1	385 nm, 795 mW (Typ.) Collimated LED for Olympus BX & IX, 1700 mA	$588.68	Today
M405L4-C1	405 nm, 510 mW (Typ.) Collimated LED for Olympus BX & IX, 1000 mA	$495.61	Today
M405LP1-C1	405 nm, 750 mW (Typ.) Collimated LED for Olympus BX & IX, 1400 mA	$588.68	Today
M455L4-C1	455 nm, 630 mW (Typ.) Collimated LED for Olympus BX & IX, 1000 mA	$577.85	Today
M470L4-C1	470 nm, 420 mW (Typ.) Collimated LED for Olympus BX & IX, 1000 mA	$577.85	5-8 Days
M505L4-C1	505 nm, 220 mW (Typ.) Collimated LED for Olympus BX & IX, 1000 mA	$577.85	Today
M530L4-C1	530 nm, 200 mW (Typ.) Collimated LED for Olympus BX & IX, 1000 mA	$577.85	Today
M590L4-C1	590 nm, 130 mW (Typ.) Collimated LED for Olympus BX & IX, 1000 mA	$495.61	Today
M617L3-C1	617 nm, 320 mW (Typ.) Collimated LED for Olympus BX & IX, 1000 mA	$349.17	Today
M617L4-C1	617 nm, 360 mW (Typ.) Collimated LED for Olympus BX & IX, 1000 mA	$495.61	5-8 Days
M625L4-C1	625 nm, 630 mW (Typ.) Collimated LED for Olympus BX & IX, 1000 mA	$478.95	Today
M660L4-C1	660 nm, 590 mW (Typ.) Collimated LED for Olympus BX & IX, 1200 mA	$495.61	Today
M780L3-C1	780 nm, 210 mW (Typ.) Collimated LED for Olympus BX & IX, 800 mA	$548.63	Today
M810L3-C1	810 nm, 245 mW (Typ.) Collimated LED for Olympus BX & IX, 500 mA	$548.63	Lead Time
M850L3-C1	850 nm, 480 mW (Typ.) Collimated LED for Olympus BX & IX, 1200 mA	$548.63	5-8 Days
M940L3-C1	940 nm, 430 mW (Typ.) Collimated LED for Olympus BX & IX, 1000 mA	$548.63	Today
MCWHL6-C1	6500 K, 548 mW (Typ.) Collimated LED for Olympus BX & IX, 1200 mA	$532.00	Today

Collimated LED Light Sources for Leica DMI Microscopes

- Approximate Beam Diameter: 37 mm
- Approximate Beam Area: 1080 mm²
- AR-Coated Aspheric Collimation Lens (EFL = 40 mm)
- See the *Specs* Tab for a Complete List of Specifications
- Cable Length: 2 m

Item #	Color[a]	Housing	Total Beam Power[b]
M365L2-C2	UV		60 mW
M365L3-C2	UV		320 mW
M365LP1-C2[c]	UV		435 mW
M385L2-C2	UV		90 mW
M385L3-C2	UV		450 mW
M385LP1-C2[c]	UV		520 mW
M405L3-C2	UV		440 mW
M405LP1-C2[c]	UV		450 mW
M455L4-C2	Royal Blue		490 mW
M470L4-C2	Blue		330 mW
M505L3-C2	Cyan		150 mW
M505L4-C2	Cyan		170 mW

Item #	Color[a]	Housing	Total Beam Power[b]
M530L4-C2	Green		160 mW
M590L4-C2	Amber		100 mW
M617L3-C2	Orange		230 mW
M617L4-C2	Orange		280 mW
M625L3-C2	Red		270 mW
M625L4-C2	Red		490 mW
M660L4-C2	Deep Red		400 mW
M780L3-C2	IR		130 mW
M810L3-C2	IR		210 mW
M850L3-C2	IR		330 mW
M940L3-C2	IR		320 mW
MCWHL6-C2	Cold White		354 mW

- Due to variations in the manufacturing process and operating parameters such as temperature and current, the actual spectral output of any given LED will vary. Output plots are only intended to be used as a guideline.
- After collimation package. Due to variations in the manufacturing process and operating parameters such as temperature and current, the total beam power of any given LED will vary.
- These LEDs have a higher output power and are mounted to a Ø57.0 mm heat sink for increased heat dissipation.

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Part Number	Description	Price	Availability
M365L2-C2	**365 nm, 60 mW (Typ.) Collimated LED for Leica DMI, 700 mA**	**$450.00**	**5-8 Days**
M365L3-C2	**365 nm, 320 mW (Typ.) Collimated LED for Leica DMI, 1000 mA**	**$557.68**	**5-8 Days**
M365LP1-C2	**365 nm, 435 mW (Typ.) Collimated LED for Leica DMI, 1700 mA**	**$678.56**	**Today**
M385L2-C2	**385 nm, 90 mW (Typ.) Collimated LED for Leica DMI, 700 mA**	**$450.00**	**Today**
M385L3-C2	**375 nm, 450 mW (Typ.) Collimated LED for Leica DMI, 1000 mA**	**$577.85**	**5-8 Days**
M385LP1-C2	**385 nm, 520 mW (Typ.) Collimated LED for Leica DMI, 1700 mA**	**$613.56**	**Today**
M405L3-C2	**405 nm, 440 mW (Typ.) Collimated LED for Leica DMI, 1000 mA**	**$495.61**	**Lead Time**
M405LP1-C2	**405 nm, 450 mW (Typ.) Collimated LED for Leica DMI, 1400 mA**	**$613.56**	**Today**
M455L4-C2	**455 nm, 490 mW (Typ.) Collimated LED for Leica DMI, 1000 mA**	**$577.85**	**Today**
M470L4-C2	**470 nm, 330 mW (Typ.) Collimated LED for Leica DMI, 1000 mA**	**$577.85**	**Today**
M505L3-C2	**505 nm, 150 mW (Typ.) Collimated LED for Leica DMI, 1000 mA**	**$407.88**	**5-8 Days**
M505L4-C2	**505 nm, 170 mW (Typ.) Collimated LED for Leica DMI, 1000 mA**	**$577.85**	**Today**
M530L4-C2	**530 nm, 160 mW (Typ.) Collimated LED for Leica DMI, 1000 mA**	**$577.85**	**Today**
M590L4-C2	**590 nm, 100 mW (Typ.) Collimated LED for Leica DMI, 1000 mA**	**$495.61**	**Today**
M617L3-C2	**617 nm, 230 mW (Typ.) Collimated LED for Leica DMI, 1000 mA**	**$349.17**	**Today**
M617L4-C2	**617 nm, 280 mW (Typ.) Collimated LED for Leica DMI, 1000 mA**	**$495.61**	**Today**
M625L3-C2	**625 nm, 270 mW (Typ.) Collimated LED for Leica DMI, 1000 mA**	**$495.61**	**5-8 Days**
M625L4-C2	**625 nm, 490 mW (Typ.) Collimated LED for Leica DMI, 1000 mA**	**$478.95**	**Today**
M660L4-C2	**660 nm, 400 mW (Typ.) Collimated LED for Leica DMI, 1200 mA**	**$495.61**	**Today**
M780L3-C2	**780 nm, 130 mW (Typ.) Collimated LED for Leica DMI, 800 mA**	**$548.63**	**5-8 Days**
M810L3-C2	**810 nm, 210 mW (Typ.) Collimated LED for Leica DMI, 500 mA**	**$548.63**	**Today**
M850L3-C2	**850 nm, 330 mW (Typ.) Collimated LED for Leica DMI, 1200 mA**	**$548.63**	**Lead Time**
M940L3-C2	**940 nm, 320 mW (Typ.) Collimated LED for Leica DMI, 1000 mA**	**$548.63**	**5-8 Days**

Collimated LED Light Sources for Zeiss Axioskop and Examiner Microscopes

- Approximate Beam Diameter: 44 mm
- Approximate Beam Area: 1520 mm²
- Compatible with Dovetail Used in Zeiss Axioskop and Examiner Microscopes
- AR-Coated Aspheric Collimation Lens (EFL: 40 mm)
- See the *Specs* Tab for a Complete List of Specifications
- Cable Length: 2 m

Item #	Color[a]	Housing	Total Beam Power[b]
M365L2-C4	UV		80 mW
M365L3-C4	UV		430 mW
M365LP1-C4[c]	UV		615 mW
M385L2-C4	UV		110 mW
M385L3-C4	UV		570 mW
M385LP1-C4[c]	UV		630 mW
M405L3-C4	UV		600 mW
M405LP1-C4[c]	UV		570 mW
M455L3-C4	Royal Blue		430 mW
M455L4-C4	Royal Blue		690 mW
M470L4-C4	Blue		460 mW
M505L3-C4	Cyan		180 mW
M505L4-C4	Cyan		240 mW

Item #	Color[a]	Housing	Total Beam Power[b]
M530L4-C4	Green		220 mW
M590L3-C4	Amber		70 mW
M590L4-C4	Amber		140 mW
M617L3-C4	Orange		280 mW
M617L4-C4	Orange		400 mW
M625L4-C4	Red		690 mW
M660L4-C4	Deep Red		570 mW
M780L3-C4	IR		180 mW
M810L3-C4	IR		230 mW
M850L3-C4	IR		400 mW
M940L3-C4	IR		380 mW
MCWHL5-C4	Cold White		380 mW
MCWHL6-C4	Cold White		493 mW

- Due to variations in the manufacturing process and operating parameters such as temperature and current, the actual spectral output of any given LED will vary. Output plots are only intended to be used as a guideline.
- After collimation package. Due to variations in the manufacturing process and operating parameters such as temperature and current, the total beam power of any given LED will vary.
- These LEDs have a higher output power and are mounted to a Ø57.0 mm heat sink for increased heat dissipation.

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Part Number	Description	Price	Availability
M365L2-C4	365 nm, 80 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 700 mA	$450.00	Today
M365L3-C4	365 nm, 430 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 1000 mA	$557.68	5-8 Days
M365LP1-C4	365 nm, 615 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 1700 mA	$678.56	Today
M385L2-C4	385 nm, 110 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 700 mA	$450.00	Today
M385L3-C4	385 nm, 570 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 1000 mA	$577.85	5-8 Days
M385LP1-C4	385 nm, 660 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 1700 mA	$613.56	Today
M405L3-C4	405 nm, 600 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 1000 mA	$495.61	5-8 Days
M405LP1-C4	405 nm, 580 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 1400 mA	$613.56	5-8 Days
M455L3-C4	455 nm, 430 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 1000 mA	$407.88	Today
M455L4-C4	455 nm, 690 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 1000 mA	$577.85	5-8 Days
M470L4-C4	470 nm, 460 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 1000 mA	$577.85	Today
M505L3-C4	505 nm, 180 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 1000 mA	$407.88	Today
M505L4-C4	505 nm, 240 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 1000 mA	$577.85	5-8 Days
M530L4-C4	530 nm, 220 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 1000 mA	$577.85	Today
M590L3-C4	590 nm, 70 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 1000 mA	$349.17	Today
M590L4-C4	590 nm, 140 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 1000 mA	$495.61	Today
M617L3-C4	617 nm, 280 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 1000 mA	$349.17	Today
M617L4-C4	617 nm, 400 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 1000 mA	$495.61	Today
M625L4-C4	625 nm, 690 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 1000 mA	$478.95	Today
M660L4-C4	660 nm, 570 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 1200 mA	$532.41	Today
M780L3-C4	780 nm, 180 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 800 mA	$548.63	Today

M810L3-C4	**810 nm, 230 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 500 mA**	**$590.84**	**Today**
M850L3-C4	**850 nm, 400 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 1200 mA**	**$548.63**	**Today**
M940L3-C4	**940 nm, 380 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 1000 mA**	**$548.63**	**5-8 Days**
MCWHL5-C4	**6500 K, 380 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 1000 mA**	**$529.15**	**Today**
MCWHL6-C4	**6500 K, 493 mW (Typ.) Collimated LED for Zeiss Axioskop & Examiner, 1200 mA**	**$532.00**	**Today**

Collimated LED Light Sources for Nikon Eclipse (Bayonet Mount) Microscopes

- Approximate Beam Diameter: 43 mm
- Approximate Beam Area: 1450 mm²
- AR-Coated Aspheric Collimation Lens (EFL: 40 mm)
- See the *Specs* Tab for a Complete List of Specifications
- Cable Length: 2 m

Item #	Color[a]	Housing	Total Beam Power[b]
M365L2-C5	UV		80 mW
M365L3-C5	UV		320 mW
M365LP1-C5[c]	UV		435 mW
M385L2-C5	UV		120 mW
M385L3-C5	UV		410 mW
M385LP1-C5[c]	UV		660 mW
M405LP1-C5[c]	UV		580 mW
M455L3-C5	Royal Blue		400 mW
M455L4-C5	Royal Blue		630 mW
M470L4-C5	Blue		420 mW
M505L4-C5	Cyan		220 mW
M530L4-C5	Green		200 mW

Item #	Color[a]	Housing	Total Beam Power[b]
M590L4-C5	Amber		130 mW
M617L3-C5	Orange		260 mW
M617L4-C5	Orange		360 mW
M625L3-C5	Red		300 mW
M625L4-C5	Red		630 mW
M660L4-C5	Deep Red		520 mW
M780L3-C5	IR		170 mW
M810L3-C5	IR		225 mW
M850L3-C5	IR		370 mW
M940L3-C5	IR		340 mW
MCWHL5-C5	Cold White		340 mW
MCWHL6-C5	Cold White		477 mW

- Due to variations in the manufacturing process and operating parameters such as temperature and current, the actual spectral output of any given LED will vary. Output plots are only intended to be used as a guideline.
- After collimation package. Due to variations in the manufacturing process and operating parameters such as temperature and current, the total beam power of any given LED will vary.
- These LEDs have a higher output power and are mounted to a Ø57.0 mm heat sink for increased heat dissipation.

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Part Number	Description	Price	Availability
M365L2-C5	**365 nm, 80 mW (Typ.) Collimated LED for Nikon Eclipse, 700 mA**	**$500.00**	**Today**
M365L3-C5	**365 nm, 320 mW (Typ.) Collimated LED for Nikon Eclipse, 1000 mA**	**$594.65**	**Today**
M365LP1-C5	**365 nm, 435 mW (Typ.) Collimated LED for Nikon Eclipse, 1700 mA**	**$727.26**	**Today**
M385L2-C5	**385 nm, 120 mW (Typ.) Collimated LED for Nikon Eclipse, 700 mA**	**$490.00**	**Today**
M385L3-C5	**385 nm, 410 mW (Typ.) Collimated LED for Nikon Eclipse, 1000 mA**	**$614.65**	**5-8 Days**
M385LP1-C5	**385 nm, 630 mW (Typ.) Collimated LED for Nikon Eclipse, 1700 mA**	**$662.26**	**Today**
M405LP1-C5	**405 nm, 570 mW (Typ.) Collimated LED for Nikon Eclipse, 1400 mA**	**$662.26**	**Today**
M455L3-C5	**455 nm, 400 mW (Typ.) Collimated LED for Nikon Eclipse, 1000 mA**	**$433.63**	**Today**
M455L4-C5	**455 nm, 630 mW (Typ.) Collimated LED for Nikon Eclipse, 1000 mA**	**$614.65**	**Today**
M470L4-C5	**470 nm, 420 mW (Typ.) Collimated LED for Nikon Eclipse, 1000 mA**	**$614.65**	**Today**
M505L4-C5	**505 nm, 220 mW (Typ.) Collimated LED for Nikon Eclipse, 1000 mA**	**$614.65**	**5-8 Days**
M530L4-C5	**530 nm, 200 mW (Typ.) Collimated LED for Nikon Eclipse, 1000 mA**	**$614.65**	**Today**
M590L4-C5	**590 nm, 130 mW (Typ.) Collimated LED for Nikon Eclipse, 1000 mA**	**$532.41**	**Today**
M617L3-C5	**617 nm, 260 mW (Typ.) Collimated LED for Nikon Eclipse, 1000 mA**	**$375.95**	**Lead Time**
M617L4-C5	**617 nm, 360 mW (Typ.) Collimated LED for Nikon Eclipse, 1000 mA**	**$532.41**	**Today**
M625L3-C5	**625 nm, 300 mW (Typ.) Collimated LED for Nikon Eclipse, 1000 mA**	**$532.41**	**Today**
M625L4-C5	**625 nm, 630 mW (Typ.) Collimated LED for Nikon Eclipse, 1000 mA**	**$525.30**	**Today**
M660L4-C5	**660 nm, 520 mW (Typ.) Collimated LED for Nikon Eclipse, 1200 mA**	**$495.61**	**Today**
M780L3-C5	**780 nm, 170 mW (Typ.) Collimated LED for Nikon Eclipse, 800 mA**	**$590.84**	**Today**
M810L3-C5	**810 nm, 225 mW (Typ.) Collimated LED for Nikon Eclipse, 500 mA**	**$548.63**	**Today**
M850L3-C5	**850 nm, 370 mW (Typ.) Collimated LED for Nikon Eclipse, 1200 mA**	**$590.84**	**Today**
M940L3-C5	**940 nm, 340 mW (Typ.) Collimated LED for Nikon Eclipse, 1000 mA**	**$590.84**	**5-8 Days**
MCWHL5-C5	**6500 K, 340 mW (Typ.) Collimated LED for Nikon Eclipse, 1000 mA**	**$570.28**	**5-8 Days**

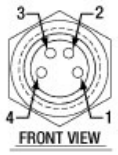
MCWHL6-C5	**6500 K, 477 mW (Typ.) Collimated LED for Nikon Eclipse, 1200 mA**	**$572.00**	**Today**

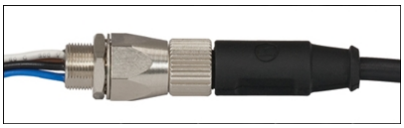
Mounted LED Mating Connector

- Pico (M8) Receptacle
- Female 4-Pin for Front Mounting
- 0.5 m Long, 24 AWG Wires
- M8 x 0.5 Panel Mount Thread
- IP 67 and NEMA 6P Rated

The CON8ML-4 connector can be used to mate mounted LEDs featured on this page to user-supplied power supplies. We also offer a male 4-Pin M8 connector cable (item # CAB-LEDD1).

Pin	Color	Specification
1	Brown	LED Anode
2	White	LED Cathode
3	Black	EEPROM GND
4	Blue	EEPROM IO





CON8ML-4 Shown Connected to the 4-Pin M8 Plug of Mounted LED

Part Number	Description	Price	Availability
CON8ML-4	**4-Pin Female Mating Connector for Mounted LEDs**	**$33.28**	**Today**

Visit the *Collimated LED Light Sources for Microscopy* page for pricing and availability information:
https://www.thorlabs.com/newgrouppage9.cfm?objectgroup_id=2615