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THORLABS

DC3100-405 - August 25, 2016

Item # DC3100-405 was discontinued on August 25, 2016. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

MODULATED LED SOURCE FOR FLIM MICROSCOPY

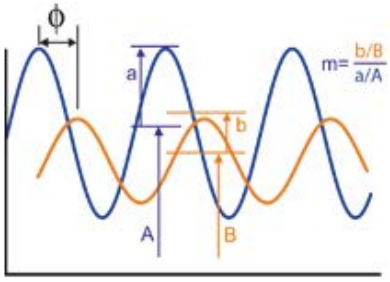
- For Frequency Domain Fluorescence Lifetime Imaging (FLIM)
- Modulation Frequency: 10 to 100 MHz
- Optional Collimator Compatible with Olympus, Nikon, Leica, and Zeiss Microscopes

Modulating High-Power LED Driver

DC3100-405

LED Head Included

Frequency Domain FLIM



Hide Overview

OVERVIEW

Features

- Very Stable, Non-Switching, LED Driver
- Designed for FLIM in the Frequency Domain
- Compact and Easy to Use
- Head Mount Compatible with Our SM2 Lens Tubes
- Optional Adapters for Microscopes:
  Olympus BX and IX, Leica DMI, Nikon Eclipse (Bayonet-Mount), Zeiss Axioskop
- USB 2.0 Interface for Remote Control
- Compatible with µManager Automation Suite

Thorlabs' DC3100 Series of Modulated LED Sources is designed for frequency domain Fluorescence Lifetime Imaging (FLIM) and other microscopy applications that require advanced modulated high brightness LED sources. This compact LED source is comprised of a high current and high power driver and a LED head with modulating electronics which is designed for high brightness LEDs with high thermal dissipation losses. The LED is included in the head. There are four standard wavelengths available: 365 nm, 405 nm, 470 nm and 630 nm (other wavelengths on request). Collimated Mounting Adapters for the Microscopes Olympus BX and IX, Leica DMI, Nikon Eclipse (Bayonet-Mount) and Zeiss Axioskop are available as optional accessories (see below). The head mount on these

Key Specifications			
Item #	**DC3100-365**	**DC3100-405**	**DC3100-470**
Wavelength (Nominal)	365 nm	405 nm	470 nm
Max Current	700 mA	1000 mA	1000 mA
LED Current	0 – 1000 mA		
Internal Modulation Frequency	10 – 100 MHz		
External Modulation Frequency	0 – 100 kHz, Sine Wave		

LED Controller Selection Guide				
Type	**Max Number of LEDs**	**Max Current**	**Modulation Mode**	**USB**
Compact T-Cube Driver	1	1.2 A	0 - 5 kHz	No
High-Power Driver	1	10.0 A	0 - 250 kHz	Yes
FLIM LED Driver[a]	1	1 A	0 - 100 kHz	Yes
4-Channel Driver	4	1 A	0 - 100 kHz	Yes

a. The FLIM LED Driver is only compatible with our FLIM LEDs and is sold with them as a kit. It offers an additional internal high frequency

LED sources is also compatible with our SM2 (2.035"-40) Lens Tubes.

modulation mode for 10 to 100 MHz (sine wave)

This LED driver can be remotely operated using the USB 2.0 connector and the included software package with an intuitive GUI and an extensive driver set. The GUI software, µManager, is a versatile, open source, software platform for automated microscopy. A plugin allows the user to control the LED driver right out of the box.

3 Modes of Operation

1. **Internal Modulation:**
   Modulated FLIM Mode (Sine Wave), Adjustable LED Brightness, Modulation Frequency in 0.1 MHz Steps and Modulation Depth in Percent
2. **External Control:**
   Customizable External Trigger Mode for non FLIM Applications, Adjustable Modulation Frequency up to 100 kHz, Input Voltage 0 to 10 V (1 V corresponds to 100 mA LED Current)
3. **Constant Current:**
   For Visual Inspection, Adjustable LED Current: 0 to 1 A in 1 mA Steps

The driver offers three operation modes for great flexibility in usage and applications. The internal modulation mode is the standard mode for typical frequency modulated FLIM applications. Here the LED's modulation frequency can be set from 10 to 100 MHz in 0.1 MHz steps (depending on the connected LED) together with brightness adjustments and setting the percentual modulation depth via the front panel. An additional external trigger mode offers LED control via an external voltage. Here the modulation is adjustable up to 100 kHz by an input voltage of 0 to 10 V (1 V corresponds to 100 mA LED current). This mode is generally used for non FLIM applications.

For easy visual inspection of the microscopy samples the constant current mode allows to control the brightness of the LED by a non modulating LED current from 0 to 1 A.

The DC3100 includes a universal (100 - 240 V) power supply with a location-specific power cord.

Microscope Adapters

The COP series adapters are designed to collimate the light emitted by the LED and mate the LED mounting head directly to the illumination ports on Olympus IX/BX (COP1), Leica DMI (COP2), Zeiss Axioskop (COP4), or Nikon Eclipse (COP5) microscopes. These adapters are available with one of two AR coatings: -A for 350 nm - 700 nm, and -B for 650 - 1050 nm.

The rear of the collimator accepts any of the modulated LED sources described above. To switch between LED sources, simply unscrew the LED housing and replace it with an alternative housing.

Click to Enlarge
FLIM LED with a COP1-A Microscope Collimator (Sold Below)

Additional Wavelengths

If the wavelengths of the standard DC3100 LED head do not match your requirements, we also offer the wavlengths listed in the table below and other custom wavelengths. Please contact your local tech support team for help ordering these specials.

Color	UV	UV	UV	Royal Blue	Blue	Cyan	Green	Amber	Red	Deep Red	IR
Dominant Wavelength	365 nm	385 nm	405 nm	455 nm	470 nm	505 nm	530 nm	594 nm	627 nm	660 nm	850 nm

Note: The DC3100 driver sold with the kits on this page is intended only for use with the LEDs also sold on this page. It is not compatible with the other LEDs manufactured or sold by Thorlabs.

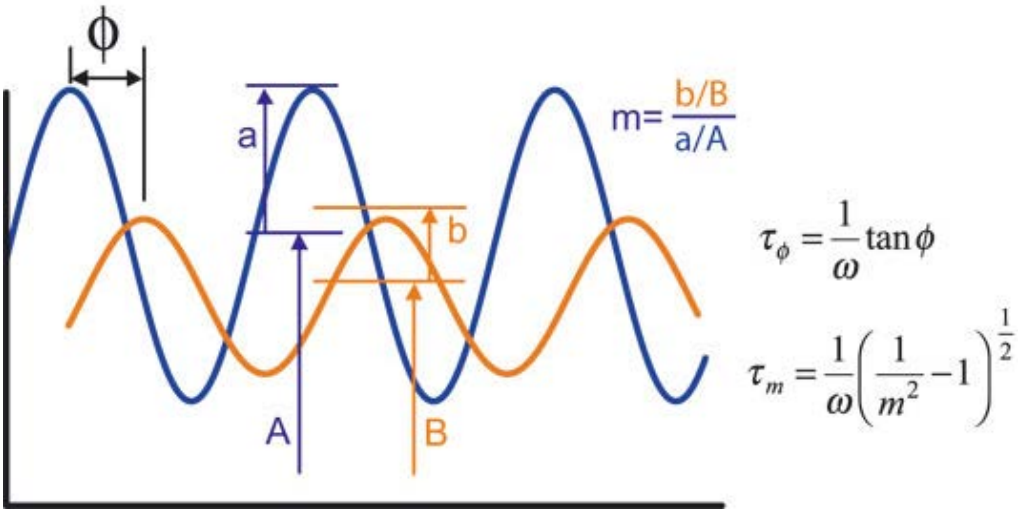
Hide Freq. Domain FLIM

FREQ. DOMAIN FLIM

Frequency Domain FLIM

FLIM (Fluorescence Lifetime Imaging) is an imaging technology that utilizes the exponential decay rate of the fluorescence from a fluorescent sample. It is mainly used with confocal microscopy and other microscope systems. The image in FLIM is based on the lifetime of the fluorophore signal, rather than its intensity. This minimizes photon scattering in thick layers of the sample.

Modulated Excitation and Fluorescence Signal used in Frequency Domain FLIM



As an alternative to Time Domain FLIM where the decay time of single excitation pulses is measured in Frequency Domain FLIM the fluorescence lifetimes is determined by phase and amplitude changes of the fluorescence excited by a modulated light source. Here the intensity of the light source is continuously modulated at high frequency. Since the excited state has a lifetime, the fluorescence signal is delayed with respect to the excitation signal plus reduced in amplitude. The lifetime can be determined from this phase shift and the amplitude reduction.

Hide Specs

SPECS

Item #	DC3100-365	DC3100-405	DC3100-470	DC3100-630
Technical Data				
Nominal Wavelength	365 nm	405 nm	470 nm	630 nm
LED Viewing Angle[a] (Typical)	120º	85º	80º	90º
LED Total Included Angle[b] (Typical)	135º	100º	90º	130º
Maximum Current	700 mA	1000 mA	1000 mA	1000 mA
Cut-off Frequency (10 dB)	90 MHz	95 MHz	80 MHz	70 MHz
LED Current Range	0 – 1000 mA			
Internal Modulation Mode (only)				
Modulation Frequency Range	10 – 100 MHz			
Modulation	Sine Wave			
Modulation Depth[c]	0 – 100 %			
Trigger Output	Sine Wave			
External Control Mode (only)				
Modulation Frequency Range	0 – 100 kHz, Sine Wave			
Modulation	Arbitrary			
Trigger Input, Max	10 V, 1 V Corresponds to 100 mA			
General Technical Data				
Operating Temperature Range[d]	0 to 40 °C			
Storage Temperature Range	-40 to 70 °C			
Dimensions (W x H x D) w/o Operating Elements	160 mm x 80 mm x 150 mm			
Dimensions (W x H x D) w/ Operating Elements	160 mm x 80 mm x 168 mm			
Warm Up Time for Rated Accuracy	<10 min			
Weight	<1 kg			

a. Viewing angle is measured at FWHM. Click to view a plot of the typical angular displacement.
b. Total included angle is measured at the 10% point, which includes 90% of the total luminous flux. Click to view a plot of the typical total included angle.
c. Depending on LED type and modulation frequency.
d. Non-condensing

All data is valid at 23 ± 5 °C and 45 ± 15% relative humidity.

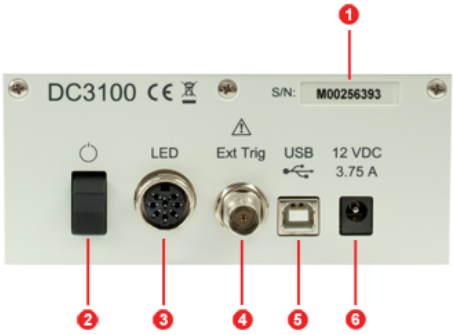
Hide Front & Back Panel

FRONT & BACK PANEL

DC3100 Front Panel

Callout	Connection	Callout	Connection
1	Display	4	OK Button
2	Display Control Knob	5	LED On/Off Button
3	Escape Button		

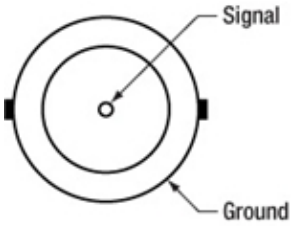
DC3100 Back Panel



Callout	Connection	Callout	Connection
1	Serial Number of the Unit	4	External Trigger Input (BNC)
2	Power Switch	5	USB Connector
3	LED Connector	6	Voltage Supply Connector

PIN DIAGRAMS

External Trigger Input
BNC Female

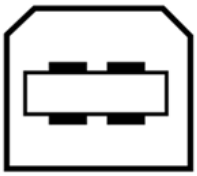


Max 10 V, 0 ... 100 kHz (Sine Wave)

Internal Modulation Reference
SMA Female

0 V to 1.5 V

Computer Connection
USB Type B



USB Type B to Type A Cable Included

SOFTWARE

Software for the DC3100 Series

Use this link to download the below software packages:

The available software is organized into the following categories:

1. **Software:** Software package with graphical user interface for operating the device in standard applications.
2. **Drivers:** Third party software modules that are required for the operation of the device, its standard software, or its drivers.

Hide LED Selection Guide

LED SELECTION GUIDE

Light Emitting Diode (LED) Selection Guide									
(Click Representative Photo to Enlarge; Not to Scale)									
Type	**Unmounted LEDs**	**PCB-Mounted LEDs**	**Heatsink-Mounted LEDs**	**Collimated LEDs for Microscopy (Item # Prefix[a])**	**Fiber-Coupled LEDs[b]**	**High-Power LEDs for Microscopy**	**4-Wavelength LED Source Options[c]**	**Modulated LEDs for FLIM Microscopy**	**LED Arrays**
Wavelength									
245 nm	LED245W (0.07 mW)	-	-	-	-	-	-	-	-
250 nm	LED250J (1 mW Min)	-	-	-	-	-	-	-	-
255 nm	LED255J (1 mW Min)	-	-	-	-	-	-	-	-
260 nm	LED260W (0.3 mW) LED260J (1 mW Min)	-	-	-	-	-	-	-	-
265 nm	LED265W (0.3 mW)	M265D2 (10 mW Min)	M265L3 (10 mW Min)	-	-	-	-	-	-
	LED275W (0.8 mW)								

275 nm	LED275J (1 mW Min)	-	-	-	-	-	-	-	-
280 nm	LED280J (1 mW Min)	M280D2 (25 mW Min)	M280L3 (25 mW Min)	-	M280F2 (323 µW)	-	-	-	-
285 nm	LED285W (0.8 mW)	-	-	-	-	-	-	-	-
290 nm	LED290W (0.8 mW)	-	-	-	-	-	-	-	-
300 nm	LED300W (0.5 mW)	M300D3 (40 mW Min)	M300L4 (40 mW Min)	-	M300F2 (320 µW)	-	-	-	-
315 nm	LED315W (0.6 mW)	-	-	-	-	-	-	-	-
340 nm	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)	M365L2 (60 mW)[d]	M365F1 (4.1 mW)	SOLIS-365A(/M) (850 mW)[e]	Available (85 mW)	DC3100-365	LIU365A (31 mW)
		M365D2 (1150 mW Min)	M365LP1 (1150 mW Min)	M365LP1 (350 mW)[d]	M365FP1 (15.5 mW)				
375 nm	LED375L (1 mW)	M375D2 (387 mW Min)	M375L3 (387 mW Min)	-	M375F2 (4.23 mW)	-	-	-	-
	LED370E (2.5 mW)								
385 nm	LED385L (5 mW)	M385D1 (270 mW Min)	M385L2 (270 mW Min)	M385L2 (90 mW)[d]	M385F1 (10.7 mW)	SOLIS-385A(/M) (1300 mW)[e]	Available (95 mW)	-	-
		M385D2 (1650 mW Min)	M385LP1 (1650 mW Min)	M385LP1 (520 mW)[d]	M385FP1 (23.2 mW)				
395 nm	LED395L (6 mW)	M395D3 (400 mW Min)	M395L4 (400 mW Min)	-	M395F3 (6.8 mW)	-	-	-	-
405 nm	LED405L (6 mW)	-	M405L3 (870 mW Min)	M405L3 (440 mW)[d]	M405F1 (3.7 mW)	SOLIS-405A(/M) (1800 mW)[e]	Available (95 mW)	DC3100-405	-
	LED405E (10 mW)	M405D2 (1500 mW Min)	M405LP1 (1500 mW Min)	M405LP1 (450 mW)[d]	M405FP1 (24.3 mW)				
420 nm	-	M420D2 (750 mW Min)	M420L3 (750 mW Min)	-	M420F2 (16.2 mW)	-	Available (290 mW)	-	-
430 nm	LED430L (8 mW)	-	-	-	-	-	-	-	-
445 nm	-	-	-	-	-	SOLIS-445B(/M) (2900 mW)[e]	-	-	-
450 nm	LED450L (7 mW)	M450D3 (1850 mW Min)	M450LP1 (1850 mW Min)	-	-	-	-	-	-
455 nm	-	M455D2 (900 mW Min)	M455L3 (900 mW Min)	M455L3 (360 mW)[d]	M455F1 (11.0 mW)	-	Available (310 mW)	-	-

465 nm	LED465E (20 mW)	-	-	-	-	-	-	-	-
470 nm	LED470L (170 mW)	M470D2 (650 mW Min)	M470L3 (650 mW Min)	M470L3 (250 mW)[d]	M470F3 (17.2 mW)	-	Available (250 mW)	DC3100-470	LIU470A (253 mW)
490 nm	LED490L (3 mW)	M490D3 (255 mW Min)	M490L4 (255 mW Min)	-	M490F3 (2.3 mW)	-	Available (50 mW)	-	-
505 nm	LED505L (4 mW)	M505D2 (400 mW Min)	M505L3 (400 mW Min)	M505L3 (150 mW)[d]	M505F1 (8.0 mW)	-	Available (170 mW)	-	-
525 nm	LED525E (2.6 mW Max) LED525L (4 mW) LED528EHP (7 mW)	-	-	-	-	SOLIS-525B(/M) (1650 mW)[e]	-	-	LIU525A (111 mW)
530 nm	-	M530D2 (350 mW Min)	M530L3 (350 mW Min)	M530L3 (130 mW)[d]	M530F2 (6.8 mW)	-	Available (100 mW)	-	-
555 nm	LED555L (1 mW)	-	-	-	-	-	-	-	-
565 nm	-	M565D2 (880 mW Min)	M565L3 (880 mW Min)		M565F1 (2.0 mW)	-	Available (106 mW)	-	-
570 nm	LED570L (0.35 mW)	-	-	-	-	-	-	-	-
590 nm	LED590L (2 mW) LED591E (2 mW)	M590D2 (160 mW Min)	M590L3 (160 mW Min)	M590L3 (60 mW)[d]	M590F2 (1.85 mW)	-	Available (65 mW)	-	LIU590A (109 mW)
595 nm	-	M595D2 (445 mW Min)	M595L3 (445 mW Min)	-	M595F2 (8.7 mW)	-	-	-	-
600 nm	LED600L (3 mW)	-	-	-	-	-	-	-	-
610 nm	LED610L (8 mW)	-	-	-	-	-	-	-	-
617 nm	-	M617D2 (600 mW Min)	M617L3 (600 mW Min)	M617L3 (230 mW)[d]	M617F2 (10.2 mW)	-	Available (210 mW)	-	-
623 nm	-	-	-	-	-	SOLIS-623A(/M) (2530 mW)[e]	-	-	-
625 nm	LED625L (12 mW)	M625D2 (700 mW Min)	M625L3 (700 mW Min)	M625L3 (270 mW)[d]	M625F1 (13.2 mW)	-	Available (240 mW)	-	-
630 nm	LED630L (16 mW)	-	-	-	-	-	-	DC3100-630	LIU630A (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)[d]	M660F1 (14.5 mW)	-	Available (210 mW)	-	-
670 nm	LED670L (12 mW)	-	-	-	-	-	-	-	-
680 nm	LED680L (8 mW)	-	-	-	-	-	-	-	-
730 nm	-	M730D2 (515 mW Min)	M730L4 (515 mW Min)	M730L4 (165 mW)[d]	-	-	-	-	-
740 nm	-	-	-	-	M740F2 (6.0 mW)	-	-	-	-
780 nm	LED780E (18 mW)	M780D2 (200 mW Min) M780D3 (800 mW Min)	M780L3 (200 mW Min) M850LP1 (800 mW Min)	M780L3 (130 mW)[d]	M780F2 (7.5 mW)	-	-	-	LIU780A (315 mW)
810 nm	-	M810D2 (325 mW Min)	M810L3 (325 mW Min)	M810L3 (210 mW)[d]	M810F2 (6.5 mW)	-	-	-	-
850 nm	LED851W (8 mW) LED851L (13 mW)	M850D2 (900 mW Min) M850D3 (1400 mW)	M850L3 (900 mW Min) M850LP1 (1400 mW)	M850L3 (330 mW)[d]	M850F2 (13.4 mW)	SOLIS-850A(/M) (1700 mW)[e]	-	-	LIU850A (322 mW)
870 nm	LED870E (22 mW)	-	-	-	-	-	-	-	-
880 nm	-	M880D2 (300 mW Min)	M880L3 (300 mW Min)	-	M880F2 (3.4 mW)	-	-	-	-
910 nm	LED910E (12 mW)	-	-	-	-	-	-	-	-
940 nm	LED940E (18 mW)	M940D2 (800 mW Min)	M940L3 (800 mW Min)	M940L3 (320 mW)[d]	M940F1 (6.5 mW)	-	-	-	-
970 nm	-	M970D2 (35 mW Min)	M970L3 (35 mW Min)	-	M970F2 (0.3 mW)	-	-	-	-
1050 nm	LED1050E (2.5 mW) LED1050L (4 mW)	M1050D1 (50 mW Min)	M1050L2 (50 mW Min)	-	M1050F1 (1.4 mW)	-	-	-	-
1070 nm	LED1070L (4 mW) LED1070E (7.5 mW)	-	-	-	-	-	-	-	-
1085 nm	LED1085L (5 mW)	-	-	-	-	-	-	-	-
1200 nm	LED1200E (2.5 mW) LED1200L (5 mW)	M1200D2 (30 mW Min)	M1200L3 (30 mW Min)	-	-	-	-	-	-
1300 nm	LED1300E (2 mW)	M1300D2 (25 mW	M1300L3 (25 mW	-	-	-	-	-	-

	LED1300L (3.5 mW)	Min)	Min)						
1450 nm	LED1450E (2 mW) LED1450L (5 mW)	M1450D2 (31 mW Min)	M1450L3 (31 mW Min)	-	-	-	-	-	-
1550 nm	LED1550E (2 mW) LED1550L (4 mW)	M1550D2 (31 mW Min)	M1550L3 (31 mW Min)	-	-	-	-	-	-
1600 nm	LED1600L (2 mW)	-	-	-	-	-	-	-	-
1650 nm	LED1600P (1.2 mW)	-	-	-	-	-	-	-	-
1750 nm	LED1700P (1.2 mW Quasi-CW, 30 mW Pulsed)	-	-	-	-	-	-	-	-
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)	-	-	-	-	-	-	-	-
4200 nm	LED4300P (0.01 mW Quasi-CW, 0.2 mW Pulsed)	-	-	-	-	-	-	-	-
4500 nm	LED4600P (0.006 mW Quasi-CW, 0.12 mW Pulsed)	-	-	-	-	-	-	-	-
572 nm and 625 nm	LEDGR (0.09 mW and 0.19 mW)	-	-	-	-	-	-	-	-
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)	-	-	-	-	-	-	-	-
440 - 660 nm (White)	LEDWE-15 (13 mW)	-	-	-	-	-	-	-	-
470 - 850 nm (Broadband)	-	MBB1D1 (70 mW Min)	MBB1L3 (70 mW Min)	-	MBB1F1 (1.2 mW)	-	-	-	-
		MCWHD2	MCWHL5						

6500 K (Cold White)	-	(800 mW Min) MCWHD3 (2350 mW Min)	(800 mW Min) MCWHLP1 (2350 mW Min)	MCWHL5 (320 mW)[d]	-	SOLIS-1A(/M) (3070 mW)[e]	-	-	-
6200 K (Cold White)	-	-	-	-	MCWHF2 (21.5 mW)	-	-	-	-
4600 - 9000 K (Cold White)	-	-	-	-	-	-	-	-	LIUCWHA (250 mW)
4000 K (Warm White	-	-	-	-	MWWHF2 (16.3 mW)	-	-	-	-
3000 K (Warm White)	-	- MWWHD3 (2000 mW Min)	MWWHL4 (570 mW Min) MWWHLP1 (2000 mW Min)	-	-	SOLIS-2A(/M) (2000 mW)[e]	-	-	-

a. 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).
b. Typical power when used with MM Fiber with Ø400 µm core, 0.39 NA.
c. Our LED4D 4-Wavelength LED Source is available with select combinations of the LEDs at these wavelengths.
d. Typical power for LEDs with the Leica DMI collimation package (Item # Suffix: -C2).
e. Minimum power for the collimated output of these LEDs. The collimation lens is installed with each LED.

Hide Modulated LED Source for FLIM Microscopy

Modulated LED Source for FLIM Microscopy

Part Number	Description	Price	Availability
DC3100-365	**Modulated LED Source for FLIM with Head 365 nm**	**$2,510.00**	**Lead Time**
DC3100-405	**Modulated LED Source for FLIM with Head 405 nm**	**$2,210.00**	**Today**
DC3100-470	**Modulated LED Source for FLIM with Head 470 nm**	**$2,210.00**	**Today**
DC3100-630	**Modulated LED Source for FLIM with Head 630 nm**	**$2,210.00**	**Today**

Hide Collimation Accessory for Modulated FLIM LEDs

Collimation Accessory for Modulated FLIM LEDs

Thorlabs offers collimation adapters with AR-coated aspheric condenser lenses (EFL: 40 mm) for collimating the output from our mounted LEDs. Two AR coating options (-A: 350 - 700 nm and -B: 650 nm - 1050 nm) and four different collimator housings are available; each is designed to mate to the illumination port on a Olympus IX/BX, Leica DMI, Nikon Eclipse, or Zeiss Axioskop microscope.

Collimation Adapter Selection Guide					
Compatible Microscopes		**Olympus BX & IX[a]**	**Leica DMI**	**Zeiss Axioskop**	**Nikon Eclipse**
AR Coating Range of Condenser Lens	**Lens Item #**	 Click to Enlarge	 Click to Enlarge	 Click to Enlarge	 Click to Enlarge
350 - 700 nm	**ACL5040U-A**	COP1-A	COP2-A	COP4-A	COP5-A
650 - 1050 nm	**ACL5040U-B**	COP1-B	COP2-B	COP4-B	COP5-B

a. Please note that due to the optical design of the transmitted lamphouse port of the BX and IX microscopes it may be necessary to purchase a separate adapter which is available from Olympus.

Part Number	Description	Price	Availability
COP1-A	**Collimation Adapter for Olympus BX & IX, AR Coating: 350 - 700 nm**	**$181.00**	**Today**
COP1-B	**Collimation Adapter for Olympus BX & IX, AR Coating: 650 - 1050 nm**	**$211.00**	**Today**
COP2-A	**Collimation Adapter for Leica DMI, AR Coating: 350 - 700 nm**	**$181.00**	**Today**
COP2-B	**Collimation Adapter for Leica DMI, AR Coating: 650 - 1050 nm**	**$211.00**	**Today**
COP4-A	**Collimation Adapter for Zeiss Axioskop, AR Coating: 350 - 700 nm**	**$181.00**	**Today**
COP4-B	**Collimation Adapter for Zeiss Axioskop, AR Coating: 650 - 1050 nm**	**$211.00**	**Lead Time**
COP5-A	**Collimation Adapter for Nikon Eclipse, AR Coating: 350 - 700 nm**	**$214.00**	**Today**
COP5-B	**Collimation Adapter for Nikon Eclipse, AR Coating: 650 - 1050 nm**	**$249.00**	**Today**

Visit the *Modulated LED Source for FLIM Microscopy* page for pricing and availability information:
https://www.thorlabs.com/newgrouppage9.cfm?objectgroup_id=3459