

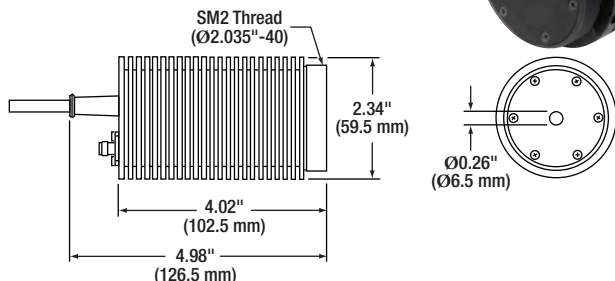
LED Source: 10 MHz to 100 MHz Modulation (Page 1 of 2)

High-Power DC3100 Series Driver
(Power Supply Included)

NEW
product



LED Head
(Includes LED)



Please refer to our website for complete models and drawings.

3 Operation Modes

- Internal Modulation Mode for FLIM Applications
- External Trigger Mode for Non-FLIM Applications
- Constant Current Mode for Visual Inspection

Thorlabs' new DC3100 series of Modulated LED Sources are designed for applications that benefit from modulated, high-brightness LED sources, such as frequency-domain Fluorescence Lifetime Imaging Microscopy (FLIM). FLIM is an imaging technology that utilizes the lifetime of the fluorophore signal to create an image. Using this technique, one can distinguish dyes, even those that fluoresce at the same wavelength, and indirectly measure biomolecular concentrations. This technique is also beneficial for imaging applications in which the excitation wavelength is close to the emission wavelength.

These compact LED sources enable the aforementioned measurements. They include a high-current, high-power LED driver with three operation modes, an LED head with modulating electronics that are designed for high-brightness LEDs with high thermal dissipation, and the LED itself. There are four standard wavelengths available: 365 nm, 405 nm, 470 nm, and 630 nm. Other wavelengths are available upon request. The DC3100 can be remotely operated via USB2.0 by the included software package with an intuitive GUI and an extensive driver set.

Specifications	
LED Current	0 to 1 A
Internal Modulation Mode	
Modulation Frequency	10 - 100 MHz in 0.1 MHz Steps*
Modulation Depth	0 to 100%
Trigger Output	Sine Wave
External Modulation Mode	
Drive Voltage	0 to 10 V (1 V/100 mA)
Modulation	Arbitrary
Modulation Frequency	0 to 100 kHz (Sine Wave)
Mechanical	
LED Mounting**	Compatible with Standard Star-Shaped PCB-Packaged LEDs

*LED dependant

**LED is delivered mounted in housing.

ITEM#	Center Peak	I (Max)	Cutoff Frequency
DC3100-365	365 nm	700 mA	90 MHz
DC3100-405	405 nm	1000 mA	95 MHz
DC3100-470	470 nm	1000 mA	80 MHz
DC3100-630	630 nm	1000 mA	70 MHz



LED Head shown with Leica DMI Collimation Adapter (Collimation Adapter Sold Separately, see Following Page)

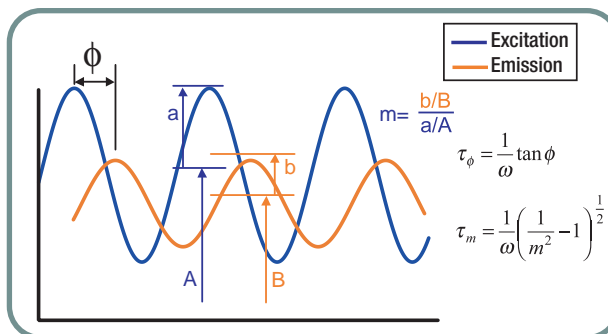
ITEM#	\$	£	€	RMB	DESCRIPTION
DC3100-365	\$ 1,950.00	£ 1,352.00	€ 1,731.00	¥ 16,466.00	Modulated LED Source for FLIM with Head, 365 nm
DC3100-405	\$ 1,650.00	£ 1,144.00	€ 1,465.00	¥ 13,933.00	Modulated LED Source for FLIM with Head, 405 nm
DC3100-470	\$ 1,650.00	£ 1,144.00	€ 1,465.00	¥ 13,933.00	Modulated LED Source for FLIM with Head, 470 nm
DC3100-630	\$ 1,650.00	£ 1,144.00	€ 1,465.00	¥ 13,933.00	Modulated LED Source for FLIM with Head, 630 nm

LED Source: 10 MHz to 100 MHz Modulation (Page 2 of 2)

Frequency-Domain FLIM

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

As an alternative to Time-Domain FLIM, where the decay time of single excitation pulses is measured, Frequency-Domain FLIM (FD-FLIM) determines the fluorescence lifetimes two ways: 1) by measuring the phase delay between the fluorescent and excitation signals and 2) by using the modulation ratio (defined in the diagram to the right). In FD-FLIM the intensity of the light source is continuously modulated at high frequency. The phase delay of the fluorescence signal with respect to the excitation signal is due to the lifetime of the excited state, and is reduced in amplitude.

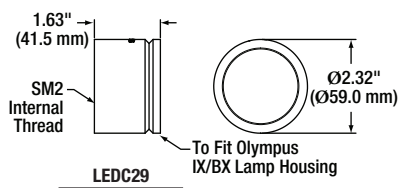


Microscope Adapters for Collimation of FLIM LEDs

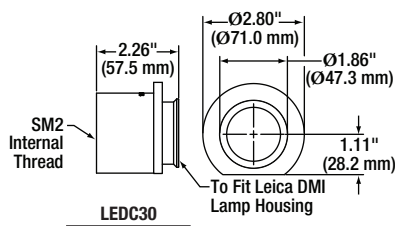
Four collimating lens housings are offered that adapt our DC3100 series of LED mounting heads directly to the illumination ports on the Olympus IX/BX (LEDC29), Leica DMI (LEDC30), Nikon Eclipse (LEDC31), or Zeiss Axioskop (LEDC32) microscopes. They collimate the light emitted by the LED modules. To switch between LED sources, simply unscrew the LED housing and replace it with an alternative housing.



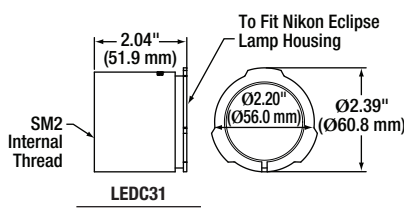
LED Head Shown with LEDC29 Collimation Adapter



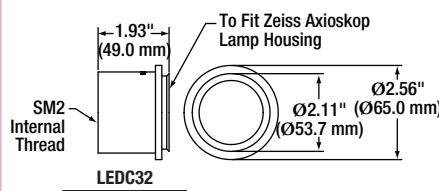
LEDC29



LEDC30



LEDC31



LEDC32

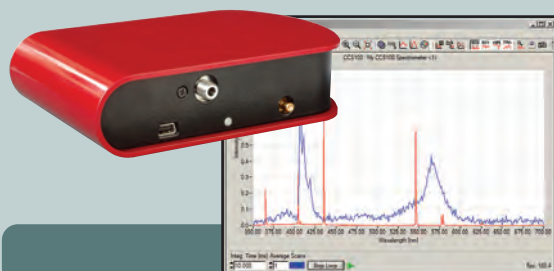
Please refer to our website for complete models and drawings.

NEW
products

ITEM#	\$	£	€	RMB	DESCRIPTION
LEDC29	\$ 175.70	£ 121.80	€ 156,00	¥ 1,483.70	Accessory for Modulated FLIM LEDs, Olympus IX/BX Port
LEDC30	\$ 175.70	£ 121.80	€ 156,00	¥ 1,483.70	Accessory for Modulated FLIM LEDs, Leica DMI Port
LEDC31	\$ 218.60	£ 151.60	€ 194,10	¥ 1,845.90	Accessory for Modulated FLIM LEDs, Nikon Eclipse (Bayonet Mount) Port
LEDC32	\$ 175.70	£ 121.80	€ 156,00	¥ 1,483.70	Accessory for Modulated FLIM LEDs, Zeiss Axioskop Port

Compact CCD Spectrometers

NEW
products



Features

- 3 Models Cover the 200-1000 nm Range
- Resolution <0.5 nm FWHM
- Sensitivity of 160 V/lux-s
- Integration Time of 10 μs to 60 s
- Czerny-Turner Spectrometer
- 30 mm x 120 mm x 80 mm Footprint
- High-Speed USB Connection
- External Trigger Synchronization
- 16-Bit A/D Converter
- 3,648 Pixel CCD Line Array

See Pages 1310-1311