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THORLABS

CSA3001 - June 22, 2016

Item # CSA3001 was discontinued on June 22, 2016. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

CERNA COMPONENTS: EPI-ILLUMINATION

- ▶ Lamps and LEDs for Illuminating the Field of View Through the Objective
- ▶ Epi-Illuminator Modules Condition the Illumination and Hold Filter Cubes
- ▶ Filter Sets for Targeted Fluorophore Stimulation
- ▶ Breadboard Top for System Developers



[Hide Overview](#)

OVERVIEW

Features

- Epi-Illuminator Modules Hold One or up to Six Filter Cubes
- Breadboard Top for User-Designed Epi-Illuminators
- X-Cite Lamps for Broadband Illumination Throughout the Visible
- Thorlabs' LEDs Provide Intense Narrowband Illumination
- Filter Sets Optimized for the Excitation and Detection of Common Fluorophores

Several components are used to construct the epi-illumination path of a Cerna microscope: the epi-illuminator module, the illumination source, filter cubes, and filter sets. These accessories guide light through the objective and aid in the generation of intense illumination across the field of view.

Epi-Illuminator Modules

Epi-illuminator modules couple light emitted by the illumination source into the optical path and onto the sample. To satisfy a range of experimental demands and budgets, we offer an epi-illuminator module that holds one filter cube as well as one that can accommodate up to six filter cubes. For system developers, we offer a breadboard top with 1/4"-20 or M6 x 1.0 taps for mounting your own epi-illumination designs.

Illumination Sources

Many illumination sources are compatible with Cerna systems, including DC-coupled, liquid light guide

Cerna Application Support

Contact Us

Thorlabs has engineers, application specialists, and a sales team available to discuss the various Cerna options and to work with you to create a system that is optimized for your unique experimental requirements. If you would like to be contacted by a member of our team, please let us know by emailing ImagingSales@thorlabs.com.

| Quick Links |
|--|
| Epi-Illuminators |
| Epi-Illuminator Modules |
| Breadboard Top for Custom Epi-Illuminators |
| Filter Cubes |
| Filter Sets |
| Illumination Sources |
| Liquid Light Guide Lamps |
| Broad-Spectrum LED Lamp |

lamps; broad-spectrum LED lamps; and Thorlabs' LEDs. Liquid light guide lamps and broad-spectrum LED lamps provide broadband illumination throughout the visible portion of the spectrum, while Thorlabs' LEDs provide intense illumination within narrower wavelength ranges. Please note that the choice of epi-illuminator module limits the illumination source options available. Details are provided below.

Filter Cubes and Filter Sets

When loaded with excitation, emission, and dichroic filters, filter cubes condition the light that reaches the sample and direct light from the sample into the widefield viewing apparatus. They are held in the epi-illuminator module. Our six-cube epi-illuminator module offers a turret that makes it easy to switch between multiple cubes.

Each filter set consists of an excitation filter, an emission filter, and a dichroic mirror that together target a specific fluorophore. A selection of popular filter sets, which target BFP, Alexa Fluor® 488/GFP, mCherry, or tdTomato, is shown below. Filter sets for other fluorophores are available at our full web presentation. Our excitation and emission filters have dimensions of Ø25 mm, while our dichroic mirrors have dimensions of 25 mm x 36 mm. These are the industry-standard sizes, making Cerna microscopes compatible with filters from all major manufacturers.

| Cerna Components | Step 1 | Step 2 | Step 3 | Step 4 | Step 5 | Step 6 | Step 7 |
|------------------|-----------------|-------------------|------------------|----------------------------------|----------------|----------------|--------------------|
| Overview | Microscope Body | Widefield Viewing | Epi-Illumination | Objectives and Objective Holders | Sample Holders | Motion Control | Trans-Illumination |

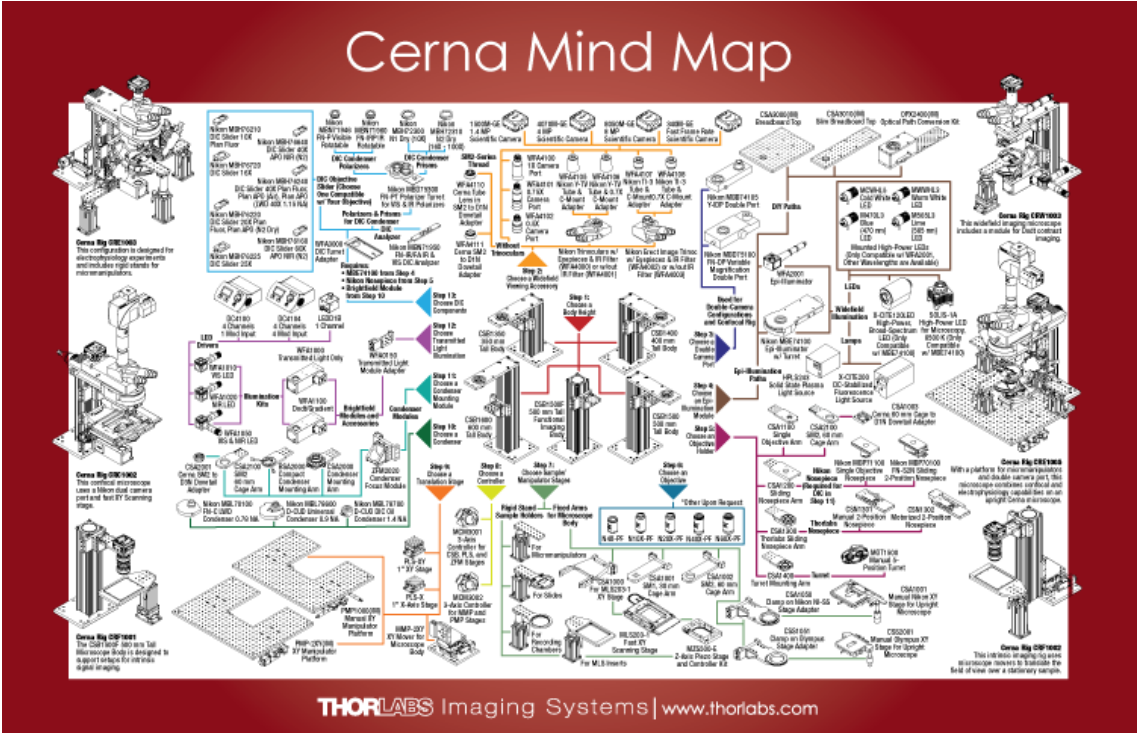
| |
|----------------------------|
| Thorlabs' LEDs |
| Drivers for Thorlabs' LEDs |

Hide Cerna Mind Map

CERNA MIND MAP

The Cerna Series Mind Map is a visual tool for selecting the modules that make up a complete Cerna microscope. Created as a supplement to the information provided directly on our website, it lays out both the required and optional components in a single 11" x 17" printed sheet. We have designed it to be used as a flowchart, starting from the red arrow at the center of the document and following the steps in order.

Click here or on the image below to download a printable PDF (6 MB). The epi-illumination accessories sold on this page correspond to Step 4 in the mind map.



[Hide Epi-Illuminator Modules and Filter Cubes](#)

Epi-Illuminator Modules and Filter Cubes

- ▶ Couple Light from the Epi-Illumination Source into the Optical Path
- ▶ Tune Illumination Conditions at Sample using Field Stop, Aperture Stop, and Filter Cubes
- ▶ Single-Cube Epi-Illuminator: Targeted Illumination of a Single Fluorophore
- ▶ Six-Cube Epi-Illuminator: Visualize Multiple Fluorophores by Rotating a Turret

Cerna epi-illuminator modules are positioned on top of the microscope body, placing them in the optical path after the epi-illumination source and before the objective. They contain a port on the back that accepts either a lamp or an LED.

Single-Cube Epi-Illuminator

The WFA2001 Epi-Illuminator holds one filter cube (sold separately), making it best suited for setups that only require epi-fluorescence at a single wavelength. It is compatible with Thorlabs' LEDs with SM1 (1.035"-40) mounting threads, as well as with lamps that have Ø3 mm liquid light guides, such as the X-CITE 200. Its aperture and field stops are adjusted by rotating the knurled rings on the exterior of the housing, shown in the image to the right.

Six-Cube Epi-Illuminator

For setups that require the flexibility to target multiple fluorophores, we recommend the MBE74100 Epi-Illuminator, which houses a turret that readily switches between up to six filter cubes (sold separately). It is compatible with lamps that have a Nikon bayonet mount, such as the X-CITE 200 and X-CITE120LED. Its aperture and field stops are adjusted by pushing and pulling the tabs on the side of the housing, shown in the image to the right.

Compatibility

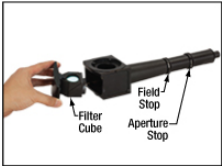
Please note that the WFA2001 single-cube and MBE74100 six-cube epi-illuminator modules are not compatible with all of our illumination sources. The table below shows which illumination sources the epi-illuminators will accept. These epi-illuminators also accept different filter cube models, so refer to the table for compatibility.

We offer Thorlabs-manufactured filter cubes and OEM filter cubes. Thorlabs' Filter Cubes are interchangeable with the OEM filter cubes and offer a number of design improvements, including simplified optic mounting and reduced dichroic mirror stress for improved imaging. Note that the OEM filter cubes utilize plastic in their construction, while Thorlabs' filter cubes have aluminum bodies. If Thorlabs and OEM cubes are mixed in a filter cube turret, it is important to place matching filter cubes opposing each other to maintain balance and prevent unnecessary wear.

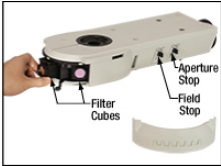
If you would like to perform DIC imaging, choose the six-cube epi-illuminator (Item # MBE74100), as the single-cube epi-illuminator is not compatible with DIC imaging.

Installation

The top of the epi-illuminator module contains a D1N female dovetail and an M4 setscrew (2 mm hex) that together accept either trinoculars (Item # WFA4000) or



Click for Details
Filter Cube in Single-Cube Epi-Illuminator



Click for Details
Filter Cube Turret in Six-Cube Epi-Illuminator

Installation of a Filter Set and Filter Cube into the Single-Cube Epi-Illuminator

a camera tube (Item # WFA4100, WFA4101, or WFA4102). The bottom of the epi-illuminator module contains a D1N male dovetail that is secured to the Cerna microscope body, which contains a mating D1N female dovetail and an M4 setscrew (2 mm hex) to lock the dovetails together. Details on the installation of illumination sources are given below.

| Options | WFA2001 | MBE74100 |
|--|---|--|
| Photo (Click to Enlarge) |  |  |
| Number of Filter Cubes (Filter Cubes Sold Separately) | One | Up to Six |
| Interfaces for Illumination Sources | SM1 Threads Ø3 mm Hole | Nikon Eclipse Bayonet Mount |
| Compatible Illumination Sources (Sold Below) | Thorlabs' LEDs Liquid Light Guide Lamps | Broad-Spectrum LED Lamps Liquid Light Guide Lamps |
| Compatible with DIC Imaging | No | Yes |
| Compatible Filter Cube Item # | Thorlabs: TLV-U-MF2 OEM: MDFM-MF2 | Thorlabs: TLV-TE2000 OEM: MDFM-TE2000 |

| Part Number | Description | Price | Availability |
|-------------|---|------------|--------------|
| WFA2001 | Single-Cube Epi-Illuminator (Filter Cube Not Included) | \$1,661.18 | Today |
| MBE74100 | Nikon D-FL Epi-Illuminator for Six Filter Cubes (Filter Cubes Not Included) | \$2,797.00 | Lead Time |
| TLV-U-MF2 | Customer Inspired!Microscopy Cube Assembly for Olympus AX, BX2, IX2 | \$441.00 | Lead Time |
| TLV-TE2000 | Customer Inspired!Microscopy Cube Assembly for Nikon TE2000, Eclipse Ti | \$398.00 | Today |
| MDFM-MF2 | OEM Microscopy Cube Assembly for Olympus AX, BX2, IX2 | \$473.89 | Today |
| MDFM-TE2000 | OEM Microscopy Cube Assembly for Nikon TE2000, Eclipse Ti | \$466.60 | Today |

[Hide Breadboard Top for Custom Epi-Illuminators](#)

Breadboard Top for Custom Epi-Illuminators



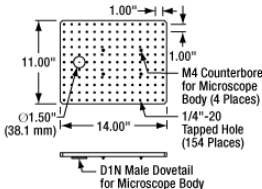
- ▶ Build Your Own Epi-Illumination Pathway
- ▶ Ø1.5" Through Hole Centered on Optical Path
- ▶ 14" x 11" (350 mm x 275 mm) Surface Area

These anodized aluminum breadboard tops allow system developers to integrate a custom-designed optical pathway

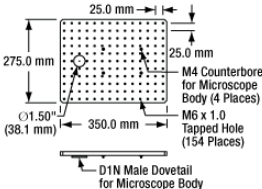
into the top of a Cerna microscope. They can be used as an alternative to the WFA2001 and MBE74100 epi-illuminator modules, or they can be stacked on top of those modules. Each breadboard contains a Ø1.5" through hole that is centered on the microscope's optical path. The imperial version (Item # CSA3000) contains 154 1/4"-20 tapped holes at 1" spacings, while the metric version (Item # CSA3001) contains 154 M6 x 1.0 tapped holes at 25 mm spacings.

Installation

A D1N male dovetail and four M4 counterbored holes align the breadboard top to the Cerna microscope body. The microscope body contains a mating D1N female



Click for Details
Drawing of Imperial Breadboard Top



Click for Details
Drawing of Metric Breadboard Top

dovetail and an M4 setscrew (2 mm hex) to lock the dovetails together. The counterbored holes are not used when stacking the breadboard on top of an epi-illuminator module.

| Part Number | Description | Price | Availability |
|-------------|-------------------------------|----------|--------------|
| CSA3001 | Breadboard Top, M6 x 1.0 Taps | \$992.15 | Lead Time |
| CSA3000 | Breadboard Top, 1/4"-20 Taps | \$992.15 | Today |

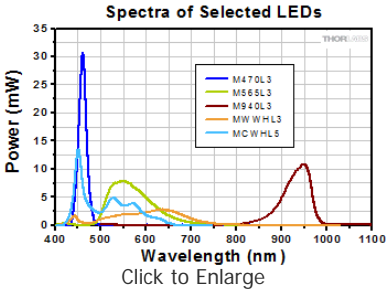
[Hide LEDs for Single-Cube Epi-Illuminator](#)

LEDs for Single-Cube Epi-Illuminator



- ▶ Long Lifetimes (>10,000 Hours for LEDs Shown Here)
- ▶ Stable Output Intensity via Optimized Thermal Management
- ▶ Output can be Modulated with Suitable Driver
- ▶ Integrated EEPROM for Automated Driver Configuration
- ▶ Only Compatible with WFA2001 Single-Cube Epi-Illuminator

These LEDs emit at important visible and NIR wavelengths and represent our most popular LEDs for the life sciences. We offer a much wider range of LEDs than the five presented here, at wavelengths from 280 nm to 1550 nm, all of which are compatible with Cerna rigs. For our full selection, please see their full web presentation.



Required Accessories

Please note that a driver, sold separately, is required to power the LED. Please refer to the LED Drivers section below for more information.

Compatibility with Epi-Illuminators

Our single-cube epi-illuminator module (Item # WFA2001) was specifically designed to accommodate these LEDs. These LEDs are not compatible with the six-cube epi-illuminator module (Item # MBE74100).

Installation

The LED housing and the WFA2001 epi-illuminator both have internal SM1 (1.035"-40) threads. To connect the LED to the epi-illuminator, we provide with the WFA2001 an externally threaded SM1 coupler (Item # SM1T10), which includes two knurled locking rings that are tightened by hand.

| Item # ^a | Color ^{b,c} | Output Power (Typical) ^b | Compatible Drivers |
|--------------------------------|-----------------------------------|-------------------------------------|---|
| M470L3 | Blue (470 nm) | 710 mW | LEDD1B DC2200 DC4100 DC4104 (See Below for Details) |
| M565L3 | Lime (565 nm) | 979 mW | |
| M940L3 | IR (940 nm) | 1000 mW | |
| MWWHL3 | Warm White (3000 K ^d) | 550 mW | |
| MCWHL5 | Cold White (6500 K ^d) | 840 mW | |
| Full Web Presentation for LEDs | | | |

- We offer a much wider range of LEDs than the four presented here, at wavelengths from 280 nm to 1550 nm, all of which are compatible with Cerna rigs. For our full selection, please see their full web presentation.
- Output power 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.
- Correlated Color Temperature.

| Part Number | Description | Price | Availability |
|-------------|--|----------|--------------|
| M470L3 | Blue (470 nm) Mounted LED, 1000 mA, 650 mW (Min) | \$268.00 | Today |
| M565L3 | Lime (565 nm) Mounted LED, 1000 mA, 880 mW (Min) | \$211.00 | Today |
| M940L3 | IR (940 nm) Mounted LED, 1000 mA, 800 mW (Min) | \$211.00 | Today |
| MCWHL5 | Cold White Mounted LED, 1000 mA, 800 mW (Min) | \$193.00 | Today |

[Hide LED Drivers](#)

LED Drivers

These drivers supply intensity control and current for Thorlabs' LEDs.



[Click to Enlarge](#)

LEDD1B Features

- ▶ Sufficient Current and Voltage to Drive *Most* of Thorlabs' LEDs
- ▶ Allows Intensity Modulation of a Single LED
- ▶ Very Compact Footprint: 60 mm x 73 mm x 104 mm (W x H x D)



[Click to Enlarge](#)

DC2200 Features

- ▶ Sufficient Current and Voltage to Drive *Any* of Thorlabs' LEDs
- ▶ Allows Intensity Modulation of a Single LED
- ▶ Provides Automated LED Current Control
- ▶ Touchscreen Display



[Click to Enlarge](#)

DC4100 Features

- ▶ Sufficient Current and Voltage to Drive *Most* of Thorlabs' LEDs
- ▶ Allows Intensity Modulation of 4 LEDs Together
- ▶ Provides Automated LED Current Control
- ▶ LCD Display



[Click to Enlarge](#)

DC4104 Features

- ▶ Sufficient Current and Voltage to Drive *Most* of Thorlabs' LEDs
- ▶ Allows Independent Intensity Modulation of 4 LEDs
- ▶ Provides Automated LED Current Control
- ▶ LCD Display

| Specifications | | | | |
|---|-----------------------|---|---|--|
| Item # | LEDD1B | DC2200 | DC4100 | DC4104 |
| Number of LEDs | One | One | Up to Four | Up to Four |
| Current Output | 1.2 A (Max) | 10.0 A (Max) | 1.0 A per Channel (Max) | 1.0 A per Channel (Max) |
| Voltage Output | 12 V (Max) | 50.0 V (Max) | 5 V (Max) | 5 V (Max) |
| Modulation Frequency Using External Input | 5 kHz (Max) | 250 kHz (Max) | 100 kHz (Max) (Simultaneous Across all Channels) | 100 kHz (Max) (Independently Controlled Channels) |
| External Control Interface(s) | Analog (BNC) | USB 2.0 and Analog (SMA) (Includes SMA to BNC Cable) | USB 2.0 and Analog (BNC) | USB 2.0 and Analog (8-Pin) |
| Automated LED Configuration | No | Yes | Yes | Yes |
| Display | None | Touchscreen | LCD | LCD |
| Link to Full Web Presentation | Full Web Presentation | Full Web Presentation | Full Web Presentation | Full Web Presentation |
| Required Accessories | KPS101 Power Supply | None | DC4100-HUB Connector Hub | |

| Part Number | Description | Price | Availability |
|-------------|---|------------|--------------|
| LEDD1B | T-Cube LED Driver, 1200 mA Max Drive Current (Power Supply Not Included) | \$293.00 | Today |
| KPS101 | 15 V, 2.4 A Power Supply Unit for One K-Cube or T-Cube | \$25.71 | Today |
| DC2200 | High-Power 1-Channel LED Driver with Pulse Modulation, 10.0 A Max, 50.0 V Max | \$1,995.00 | Lead Time |
| 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 |
| DC4100-HUB | Single LED Connector Hub for DC4100 | \$309.00 | Today |

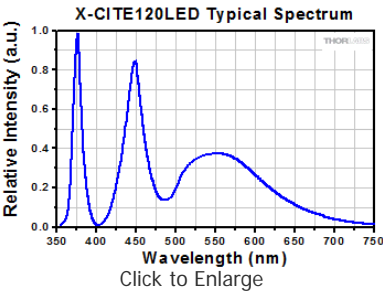
[Hide Broad-Spectrum LED Lamp for Six-Cube Epi-Illuminator](#)

Broad-Spectrum LED Lamp for Six-Cube Epi-Illuminator



- ▶ Long Lifetime (>25,000 Hours for LED)
- ▶ Stable Output Intensity and Automated Thermal Management
- ▶ Output can be Modulated via BNC Input, RS-232, or USB
- ▶ Only Compatible with MBE74100 Six-Cube Epi-Illuminator

The X-CITE120LED is a broad-spectrum LED lamp that emits from 370 to 700 nm. Its broadband emission makes it best suited for setups that require the flexibility to stimulate fluorophores whose absorption wavelengths are spectrally separated. It is designed to be used in combination with filter cubes loaded into the MBE74100 six-cube epi-illuminator, which help condition the light from the lamp to target specific fluorophores. An output spectrum provided by the manufacturer is shown to the right.



A knobbed controller is included with this lamp for manual intensity control. The lamp will also accept external modulation signals provided via BNC, RS-232, or USB.

Compatibility with Epi-Illuminators

To use this lamp with a Cerna microscope, the MBE74100 six-cube epi-illuminator module is required. Our single-cube epi-illuminator module is not compatible with this lamp.

Installation

The lamphouse port is equipped with a Nikon Eclipse bayonet mount that is inserted into the MBE74100 epi-illuminator. The mating port on the epi-illuminator has a knurled locking ring that is rotated to lock the lamphouse in place.

| Part Number | Description | Price | Availability |
|--------------|-------------------------|------------|--------------|
| X-CITE120LED | Broad-Spectrum LED Lamp | \$6,495.00 | Lead Time |

[Hide Liquid Light Guide Lamps for Epi-Illuminators](#)

Liquid Light Guide Lamps for Epi-Illuminators

These lamps use flexible cables known as liquid light guides (LLGs) to deliver broad-spectrum visible light into the epi-illuminator. Their broadband emission makes them best suited for setups that require the flexibility to stimulate fluorophores whose absorption wavelengths are spectrally separated. They are designed to be used in combination with filter cubes loaded into the epi-illuminator, which help condition the light from the lamp to target specific fluorophores.

Compatibility with Epi-Illuminators

The lamps shown here are compatible with both the WFA2001 single-cube and MBE74100 six-cube epi-illuminator modules.



Click to Enlarge



Click to Enlarge

HPLS243 Features

- ▶ Output Spectrum: 400 - 700 nm
- ▶ Intensity is Variable from 0% to 100% via Soft-Touch Front Panel
- ▶ External Control via USB 2.0
- ▶ >10,000 Hour Lifetime (After 10,000 Hours, the Intensity will be 50% of the Original Intensity)
- ▶ Includes Ø3 mm, 1.2 m (4') Long LLG
- ▶ Requires LLG3A5-A Collimating Adapter when used with MBE74100 Epi-Illuminator
- ▶ Link to Full Web Presentation

Installation

Our WFA2001 single-cube epi-illuminator ships with an adapter that directly accepts the LLG; simply insert the LLG and secure it using the included thumbscrew.

The back of the MBE74100 six-cube epi-illuminator contains a port that accepts Nikon Eclipse bayonet mounts. Connect our LLG3A5-A collimating adapter (sold separately) to the LLG, securing the adapter with the included 4-40 setscrew (0.050" hex). Then insert the adapter to the mating port on the epi-illuminator, rotating the knurled ring to lock it in place.

X-CITE 200 Features

- ▶ Output Spectrum: 340 - 800 nm
- ▶ Intensity is Variable from 0% to 100% Using Knob
- ▶ External Control via BNC Input
- ▶ >2,000 Hour Minimum Lifetime; >2,500 Hour Typical Lifetime
- ▶ Includes Ø3 mm, 5' (1.5 m) Long LLG

Installation

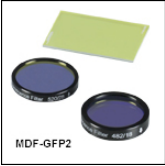
Our WFA2001 single-cube epi-illuminator ships with an adapter that directly accepts the LLG; simply insert the LLG and secure it using the included thumbscrew.

The back of the MBE74100 six-cube epi-illuminator contains a port that accepts Nikon Eclipse bayonet mounts. Connect the collimating adapter included with the X-CITE 200 to the LLG, securing the adapter with the provided thumbscrew. Then insert the adapter to the mating port on the epi-illuminator, rotating the knurled ring to lock it in place.

| Part Number | Description | Price | Availability |
|-------------|--|------------|--------------|
| HPLS243 | Plasma Light Source with Ø3 mm, 4 ft (1.2 m) Liquid Light Guide | \$3,920.00 | Today |
| X-CITE 200 | DC-Coupled Lamp with Liquid Light Guide | \$6,495.00 | Today |
| LLG3A5-A | Ø3 mm LLG Collimating Adapter, Nikon Eclipse Ti, ARC: 350-700 nm | \$407.00 | Today |

[Hide Filter Sets](#)

Filter Sets



- ▶ Used for Epi-Fluorescence Studies
- ▶ Tune Light from the Illumination Source to Detect Specific Fluorophores with Widefield Viewing
- ▶ Each Set Consists of an Excitation Filter, an Emission Filter, and a Dichroic Mirror
- ▶ Available Target Fluorophores: BFP, Alexa Fluor® 488/GFP, mCherry, and tdTomato
- ▶ Other Filter Sets at our Complete Web Presentation

Epi-fluorescence filter sets are inserted into filter cubes (sold above) to condition the light emitted by the illumination source for the detection of specific fluorophores. The filters shown here are designed for four popular fluorophores: BFP, Alexa Fluor® 488, mCherry, or tdTomato. Each set consists of an excitation filter, an emission filter, and a dichroic filter. Their transmission curves are given in the table to the right.

Our filters come in the industry-standard sizes. For excitation and emission filters, the standard dimensions are Ø25 mm, while for dichroic mirrors, the standard dimensions are 25 mm x 36 mm. This allows Cerna microscopes to be compatible with filters from all major manufacturers.

It is important to install the filters in the right position in the filter cube to maximize signal generation and collection efficiency. The excitation filter should face horizontally, toward the epi-illuminator module; the emission filter should face vertically, toward the trinoculars and/or scientific camera; and the side of the dichroic filter with the dichroic coating, which is marked at the factory, should be oriented downward, toward the sample.

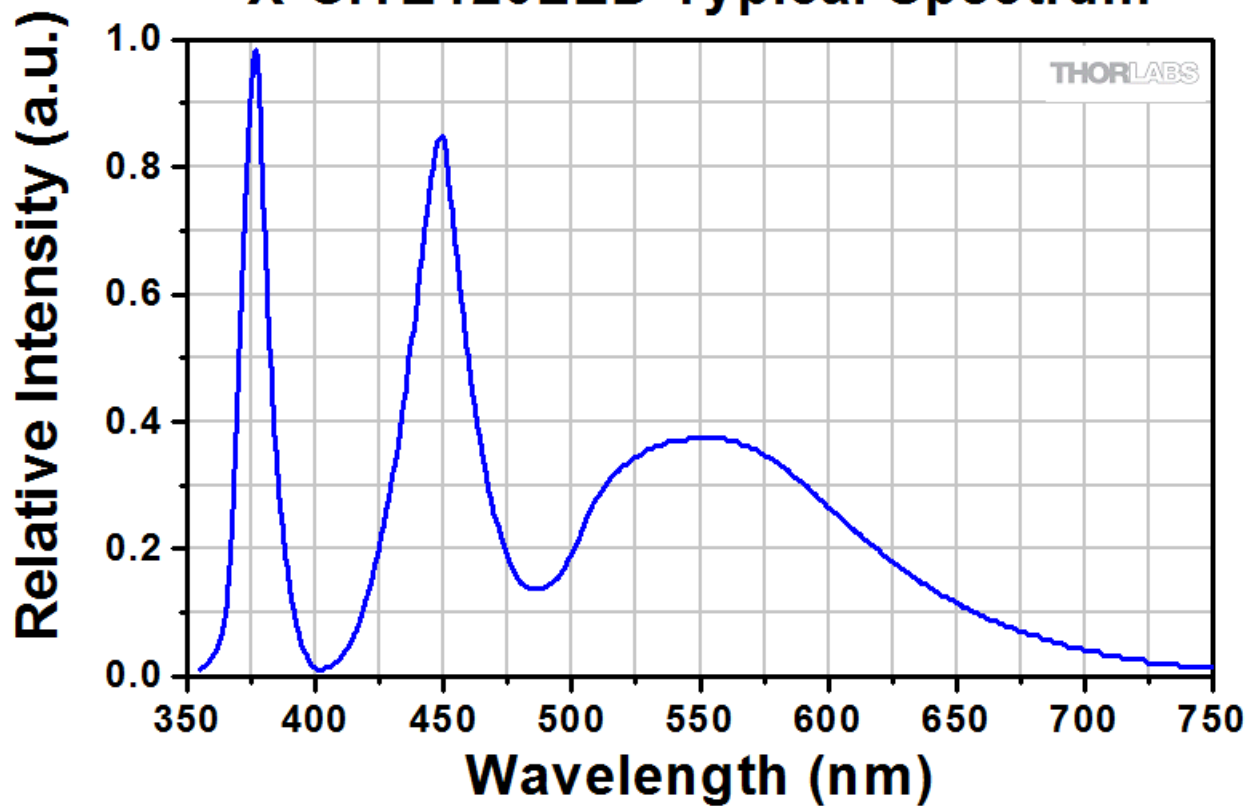
| Filter Transmission Spectra | | |
|-----------------------------|----------------------|-------------------------------------|
| Item # | Target Fluorophore | Transmission Graph (Click for Plot) |
| MDF-BFP | BFP | |
| MDF-GFP2 | Alexa Fluor® 488 GFP | |
| MDF-MCHA ^a | mCherry | |
| MDF-MCHC ^b | mCherry | |
| MDF-TOM | tdTomato | |

- This filter set's excitation range is centered around 578 nm, making it well matched to typical LEDs.
- This filter set's excitation range is centered around 562 nm, making it well matched to typical lamps.

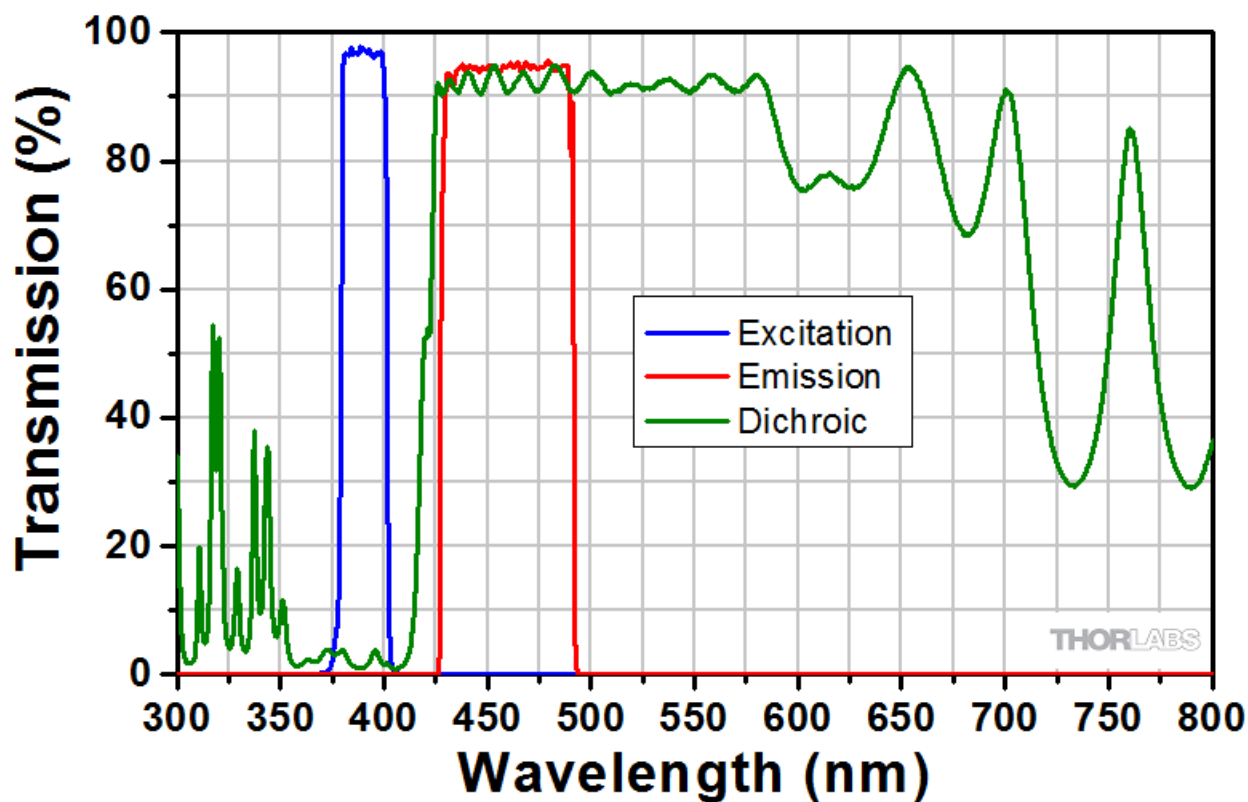
| Part Number | Description | Price | Availability |
|-------------|---|----------|--------------|
| MDF-BFP | BFP Excitation, Emission, and Dichroic Filters (Set of 3) | \$625.00 | Today |
| MDF-GFP2 | Alexa Fluor® 488 Excitation, Emission, and Dichroic Filters (Set of 3) | \$785.00 | Today |
| MDF-MCHA | mCherry-A Excitation, Emission, and Dichroic Filters for LEDs (Set of 3) | \$785.00 | Today |
| MDF-MCHC | mCherry-C Excitation, Emission, and Dichroic Filters for Lamps (Set of 3) | \$785.00 | Today |
| MDF-TOM | tdTomato Excitation, Emission, and Dichroic Filters (Set of 3) | \$785.00 | Today |

Visit the *Cerna Components: Epi-Illumination* page for pricing and availability information:
https://www.thorlabs.com/newgrouppage9.cfm?objectgroup_id=8565

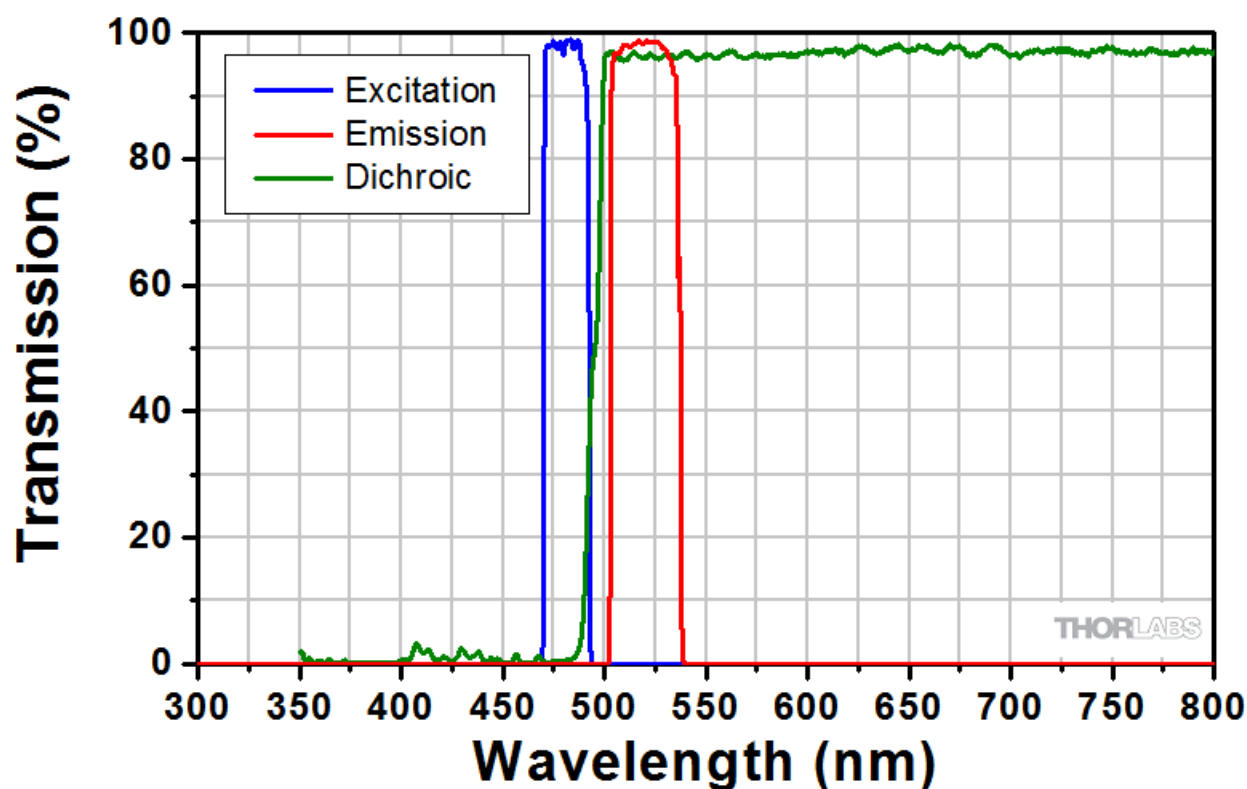
X-CITE120LED Typical Spectrum



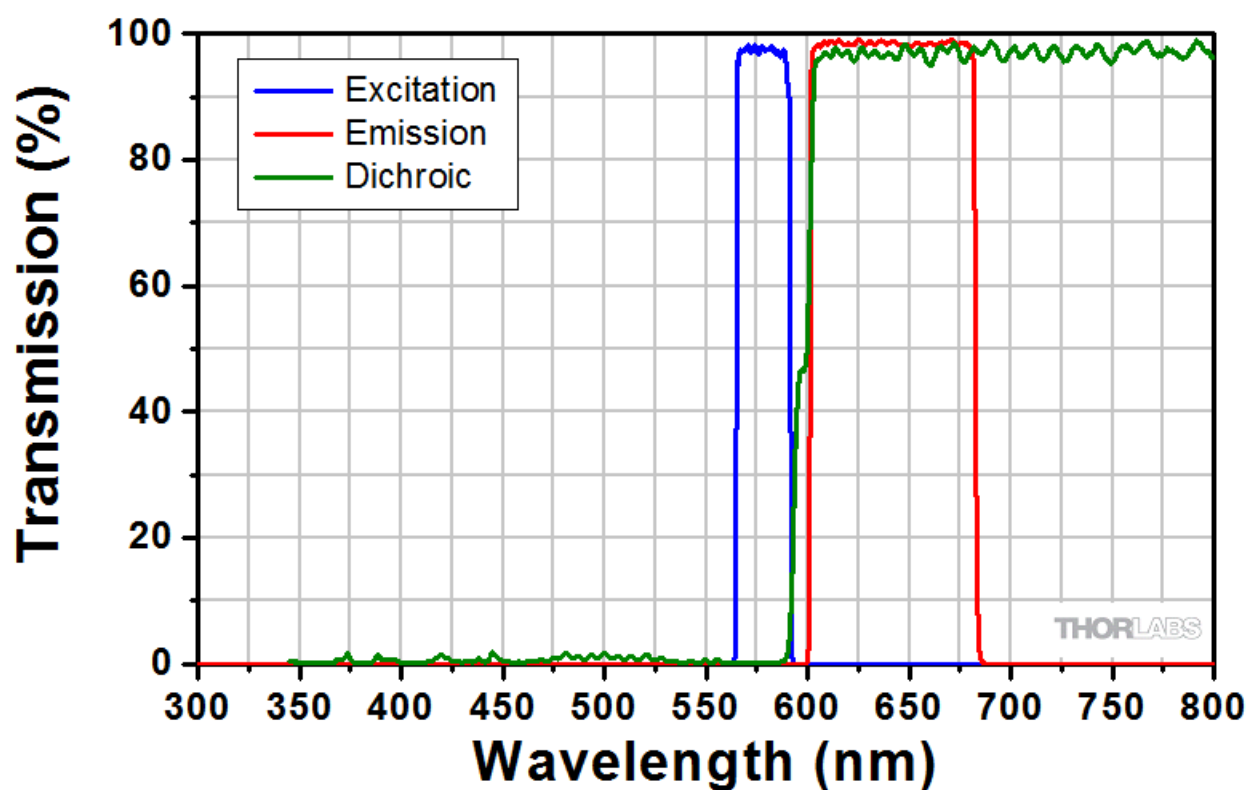
MDF-BFP Transmission



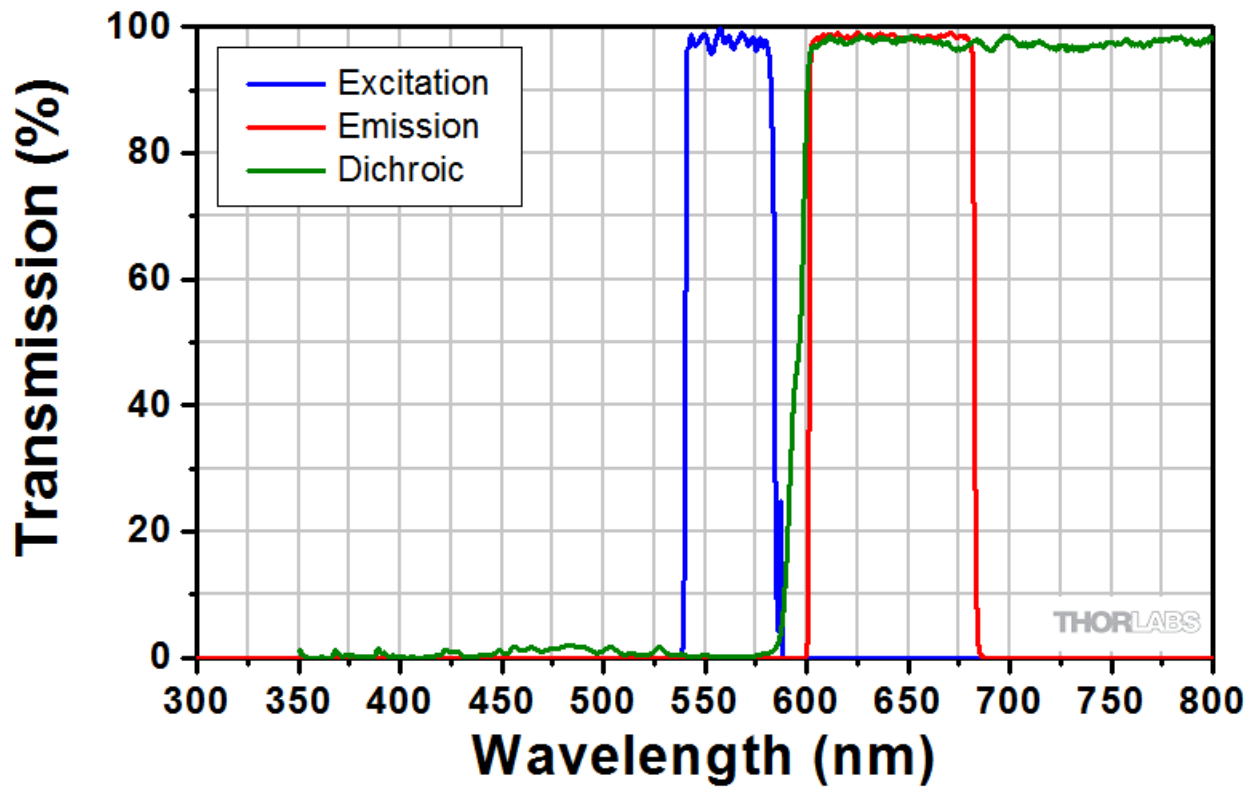
MDF-GFP2 Transmission



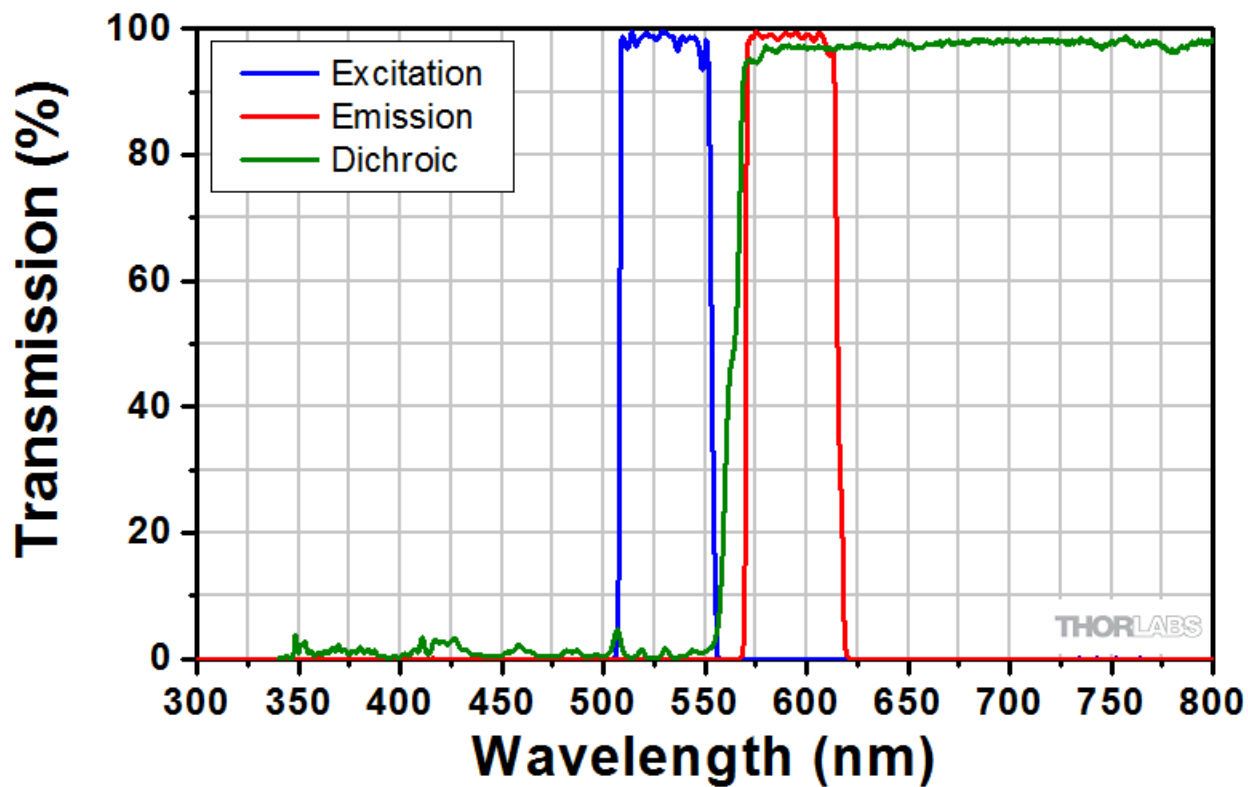
MDF-MCHA Transmission



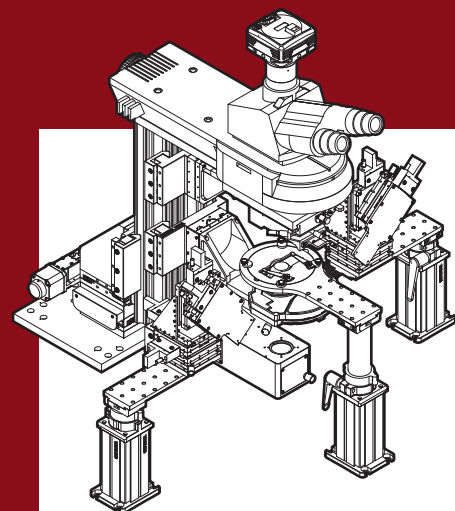
MDF-MCHC Transmission



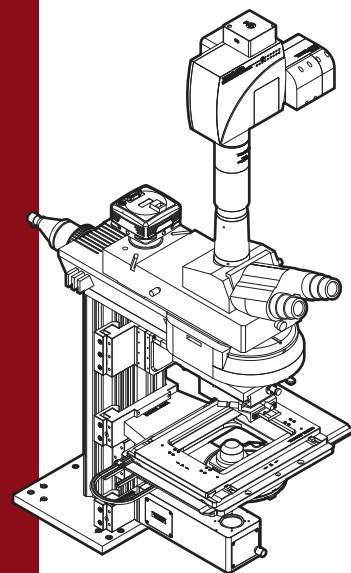
MDF-TOM Transmission



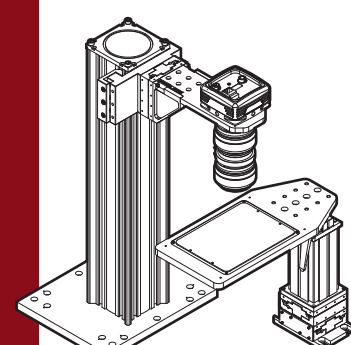
Cerna Series Microscopy Platform



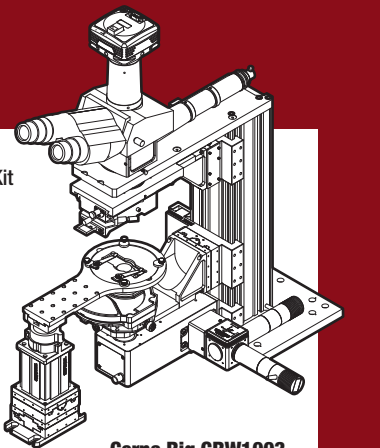
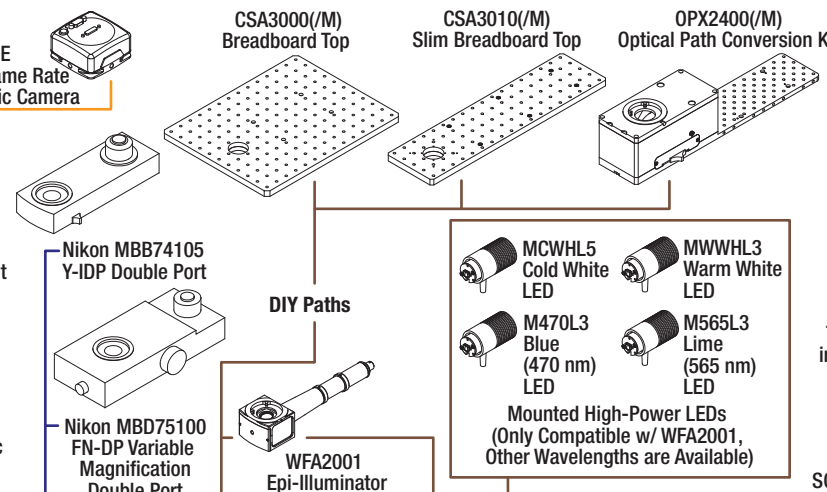
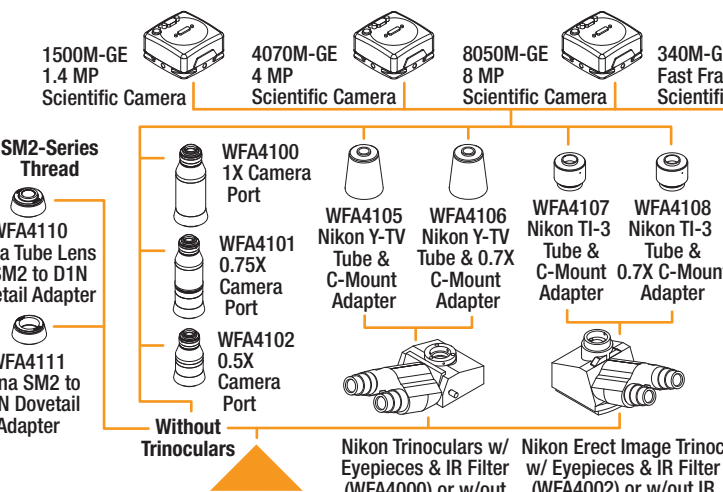
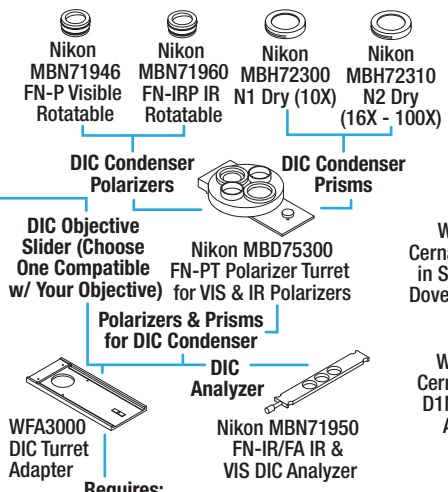
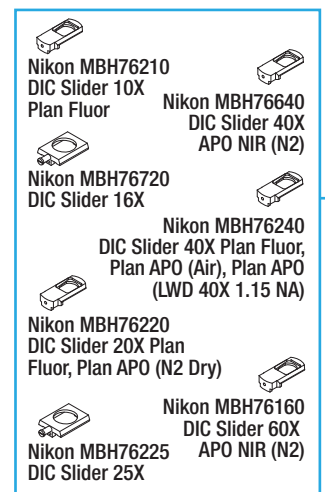
Cerna Rig CRE1003
This configuration is designed for electrophysiology experiments and includes rigid stands for micromanipulators.



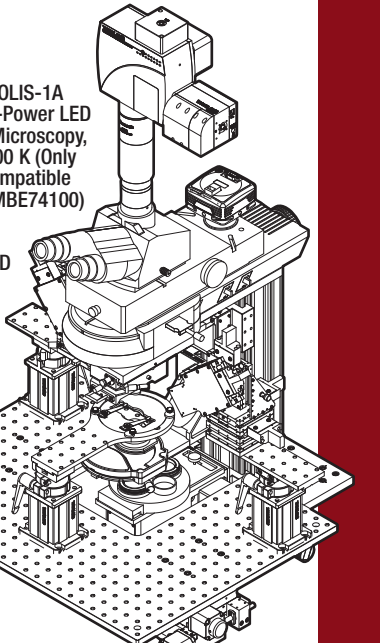
Cerna Rig CRC1002
This confocal microscope uses a Nikon dual camera port and fast XY Scanning stage.



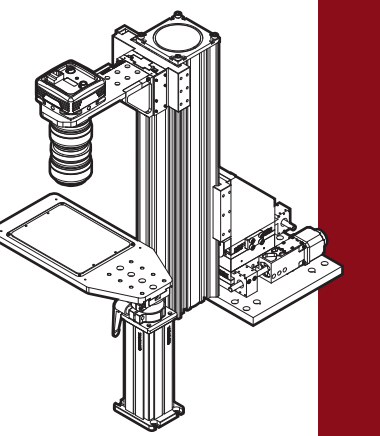
Cerna Rig CRF1001
The CSB1500F 500 mm Tall Microscope Body is designed to support setups for intrinsic signal imaging.



Cerna Rig CRW1003
This widefield imaging microscope includes a module for Dof contrast imaging.



Cerna Rig CRE1005
With a platform for micromanipulators and double camera port, this microscope combines confocal and electrophysiology capabilities on an upright Cerna microscope.



Cerna Rig CRF1002
This intrinsic imaging rig uses microscope movers to translate the field of view over a stationary sample.

