

56 Sparta Avenue • Newton, New Jersey 07860  
(973) 300-3000 Sales • (973) 300-3600 Fax  
www.thorlabs.com

THORLABS

MCM3000 - June 22, 2016

Item # MCM3000 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: MOTION CONTROL

- ▶ Motorize Small Samples or Large Setups Underneath the Objective
- ▶ Stages for Rigid Stands Provide 1" Travel in X and/or Y
- ▶ Translating Platform for Electrophysiology Provides 2" Travel in X and Y



PLS-X  
1D Stage for  
Rigid Stands



MCM3000  
3-Axis Controller



PMP-2XY  
Translating Platform with  
Tapped Holes



Recording Chamber with  
Motorized 2D Translation

[Hide Overview](#)

OVERVIEW

Features

- Translation Stages Add 1" of X and/or Y Travel to Rigid Stands
- Translating Platform Supplies 2" of Both X and Y Travel for Large Setups
- 3-Axis Controller Provides a Knob for Each Axis

Thorlabs manufactures two different options for fine motorized movement of samples being studied with our Cerna microscopes. The first, our Translation Stages for Rigid Stands, offer 1" of linear travel in X and/or Y for samples or equipment mounted on our rigid stand sample holders. The other, a Translating Platform, measures 24" x 18" (600 mm x 450 mm), offers 2" of travel in both X and Y, contains an array of 1/4"-20 or M6 x 1.0 tapped holes, and allows large, multi-component experimental setups to be translated as a single unit. Both options are shaped to fit around the rest of the microscope and do not impede access to other components.

All of these motion control accessories are operated using our standard 3-axis controller, which includes knobs for manual control of up to three attached axes. This is the same controller required by our objective focusing module and condenser focusing module, so if you already have a controller with a sufficient number of empty channels, it is not necessary to purchase a second controller.

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](mailto:ImagingSales@thorlabs.com).

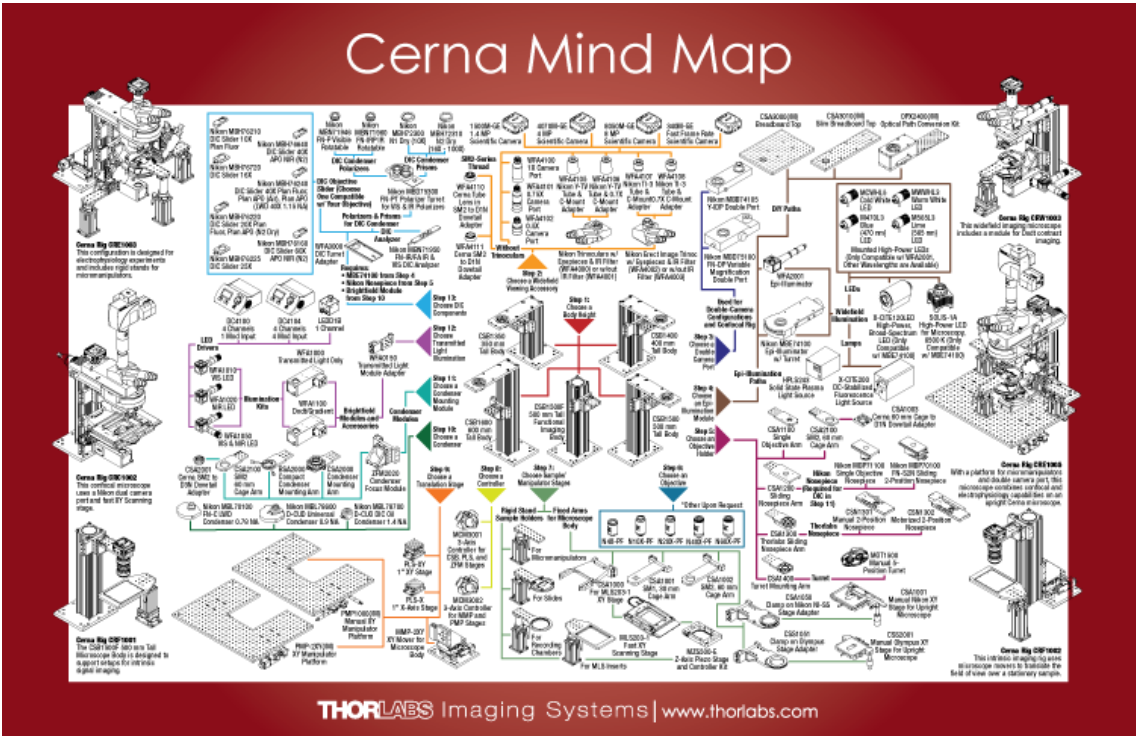
Cerna Components	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7
Overview	Microscope Body	Widefield Viewing	Epi-Illumination	Objectives and Objective Holders	Sample Holders	Motion Control	Trans-Illumination

[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 motion control accessories sold on this page correspond to Steps 9 and 10 in the mind map.

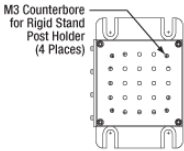


[Hide Translation Stages for Rigid Stands](#)

Translation Stages for Rigid Stands



- ▶ 1" Travel Range; Available in 1D and 2D Versions
- ▶ Provides Motorized Movement for Samples Mounted on Rigid Stand Sample Holders (Sold Separately)
- ▶ Requires Our Standard 3-Axis Controller (Item # MCM3000, Sold at Bottom of Page)



These translation stages enable fine linear travel for slides, petri dishes, well plates, micromanipulators, and other components that are mounted on our rigid stands. The PLS-X is a 1D translation stage that offers 1" of travel in X, while the PLS-XY is a 2D translation stage with 1" of travel in X and Y. It is possible to combine two PLS-X stages to effectively create a PLS-XY stage, leaving open the possibility of later upgrades.

As shown by the drawing to the right, the translation stages are mounted on a 3.00" x 4.50" (76.2 mm x 114.3 mm) base plate that contains four 1/4" (M6) counterbored slots for securing it to the workstation.

**Installation**

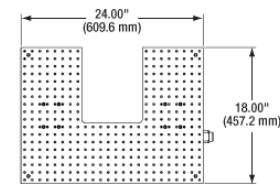
To mount a rigid stand to the top of the translation stage, detach the base plate that came with the rigid stand from the red post holder by using a 2.5 mm balldriver to remove the four M3 cap screws. This base plate will be replaced by the motorized translation stage. Next, detach the top plate of the translation stage by using a 3/32" balldriver to remove the four 4-40 cap screws at the corners. This top plate contains four M3 counterbores that are spaced to mate with the end of the red post holder.

Part Number	Description	Price	Availability
PLS-X	1D Motorized Translation Stage for Rigid Stands	\$1,296.80	Today
PLS-XY	2D Motorized Translation Stage for Rigid Stands	\$2,370.52	Today

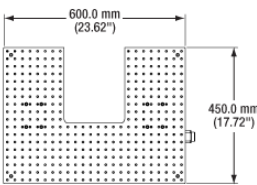
Translating Platform



- ▶ 2" Travel Range in Both X and Y
- ▶ 24" x 18" (600 mm x 450 mm) Platform with 352 1/4"-20 (M6 x 1.0) Tapped Holes for Securing Equipment
- ▶ Supports Setups that Access the Optical Path from the Front and the Sides
- ▶ Requires Our Standard 3-Axis Controller (Item # MCM3000, Sold at Bottom of Page)



Imperial Version  
Click for Details  
Drawing of Imperial Translating Platform



Metric Version  
Click for Details  
Drawing of Metric Translating Platform



Click for Details  
Empty Translating  
Platform Around a  
Basic Cerna Rig

Originally designed for electrophysiology applications involving micromanipulators, this U-shaped breadboard is shaped to fit around the Cerna microscope body and any modules installed in the optical path, such as our fixed arms and trans-illumination modules. It provides 2" of travel in X and Y. The breadboard contains an array of 352 1/4"-20 (M6 x 1.0) tapped holes on 1" (25 mm) centers that can be used to secure rigid stands and other experimental equipment, allowing several separate pieces of a large setup to be translated in unison.

As shown by the drawings above, the surface area of the breadboard measures 24" x 18" (600 mm x 450 mm). The majority of the footprint is contained within this surface area, except for an actuator that protrudes slightly past the right edge, as shown in the drawings above. When installed on the workstation, the top of the breadboard will sit 4.58" (116.4 mm) above the workstation's surface. It is supported by two base plates underneath the breadboard, which contain counterbores that are spaced to mate with typical 1/4"-20 and

M6 x 1.0 tapped hole patterns.

Part Number	Description	Price	Availability
PMP-2XY/M	Translating Platform, M6 x 1.0 Taps	\$12,211.72	Today
PMP-2XY	Translating Platform, 1/4"-20 Taps	\$12,211.72	Today

[Hide 3-Axis Controller](#)

3-Axis Controller



- ▶ Required to Use Our Objective Focusing Module, Translation Stages for Rigid Stands, Translating Platform, and Condenser Focusing Module
- ▶ Knobs Provide Control for up to Three Axes
- ▶ Each Axis can be Individually Disabled to Prevent Unintended Movements or to Save a Position
- ▶ Adjust Translation Speed via Top-Located Knob
- ▶ SDK and LabVIEW Examples Available by Contacting Tech Support

The MCM3000 3-Axis Controller is used to enable motion control for any of the following Cerna components: the objective focusing module (included with the microscope body), the condenser focusing module, the translation stages for rigid stands (sold above), and the translating platform (also sold above). At least one controller is required to operate a Cerna microscope, and more may be necessary, depending on the total number of movements that need to be controlled.

Each side face of the controller contains a knob and a push-button switch that are dedicated to a single axis. Rotating the knob translates the component connected to that axis, and the push-button switch allows the axis to be disabled if you wish to preserve a position along a given coordinate or prevent a bumped controller from accidentally moving the microscope. The switch will turn green when the axis is enabled. A separate, smaller knob on the top face can be used to adjust the amount of translation per rotation of the knob.

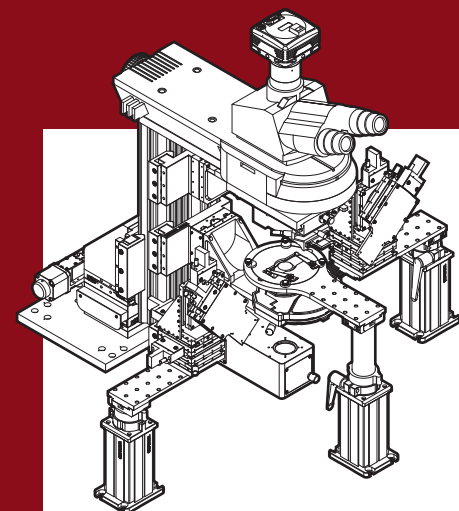
Since the same controller is used for all Cerna components, you only need to purchase enough channels for each of the modules you intend to drive. For example, a Cerna microscope equipped with the PLS-XY Translation Stage (sold above) and the objective focusing module would only require one controller.

Part Number	Description	Price	Availability
MCM3000	3-Axis Controller	\$4,500.00	Lead Time

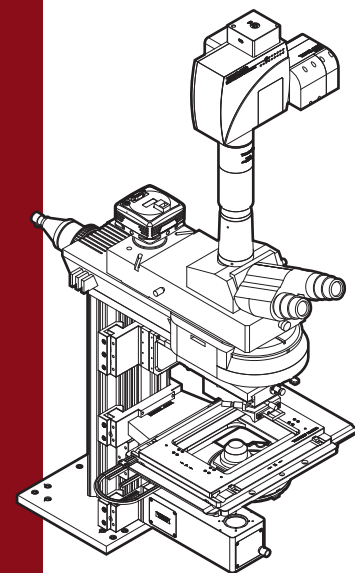
Visit the *Cerna Components: Motion Control* page for pricing and availability information:  
[https://www.thorlabs.com/newgrouppage9.cfm?objectgroup\\_id=8568](https://www.thorlabs.com/newgrouppage9.cfm?objectgroup_id=8568)



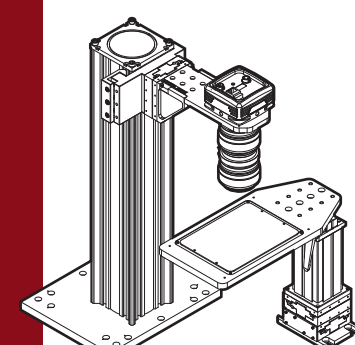
# Cerna Series Microscopy Platform



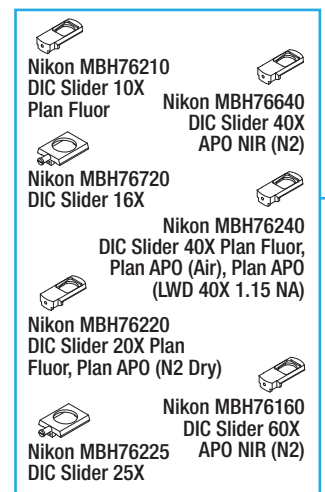
**Cerna Rig CRE1003**  
This configuration is designed for electrophysiology experiments and includes rigid stands for micromanipulators.



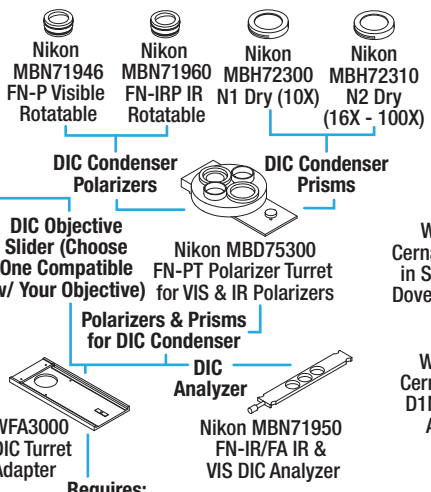
**Cerna Rig CRC1002**  
This confocal microscope uses a Nikon dual camera port and fast XY Scanning stage.



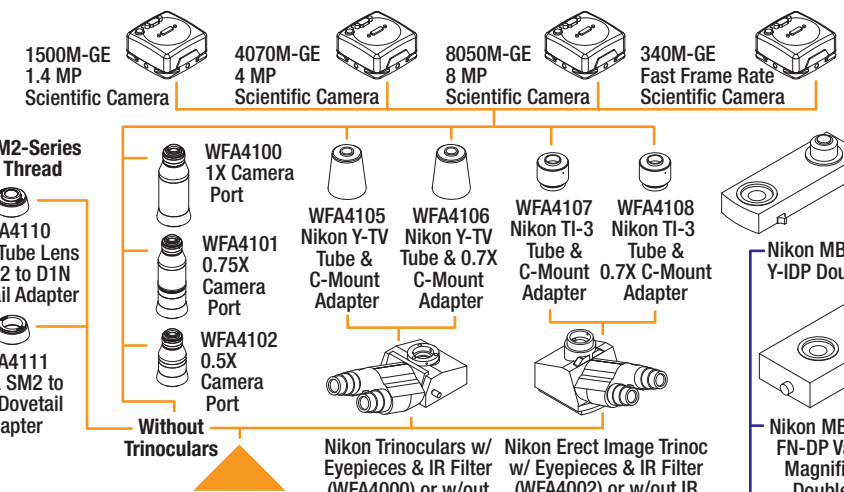
**Cerna Rig CRF1001**  
The CSB1500F 500 mm Tall Microscope Body is designed to support setups for intrinsic signal imaging.



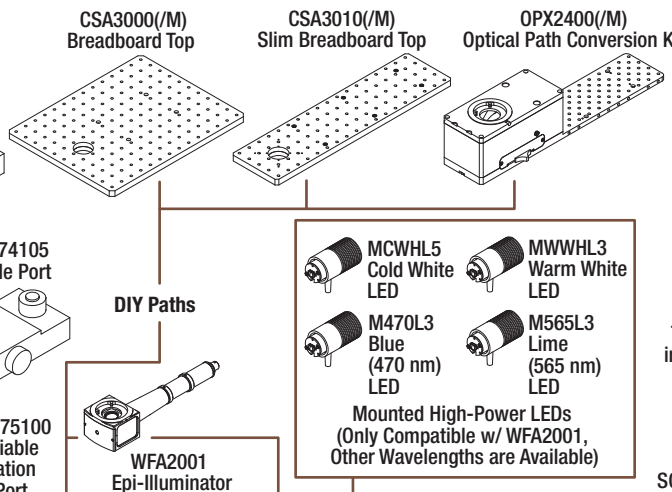
Nikon MBH76210 DIC Slider 10X Plan Fluor  
Nikon MBH76640 DIC Slider 40X APO NIR (N2)  
Nikon MBH76220 DIC Slider 16X  
Nikon MBH76240 DIC Slider 40X Plan Fluor, Plan APO (Air), Plan APO (LWD 40X 1.15 NA)  
Nikon MBH76220 DIC Slider 20X Plan Fluor, Plan APO (N2 Dry)  
Nikon MBH76160 DIC Slider 60X APO NIR (N2)  
Nikon MBH76225 DIC Slider 25X



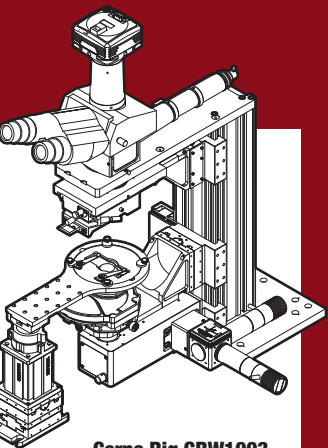
Nikon MBN71946 FN-P Visible Rotatable  
Nikon MBN71960 FN-IRP IR Rotatable  
Nikon MBH72300 N1 Dry (10X)  
Nikon MBH72310 N2 Dry (16X - 100X)  
DIC Condenser Polarizers  
DIC Condenser Prisms  
DIC Objective Slider (Choose One Compatible w/ Your Objective)  
Nikon MBD75300 FN-PT Polarizer Turret for VIS & IR Polarizers  
Polarizers & Prisms for DIC Condenser  
DIC Analyzer  
WFA3000 DIC Turret Adapter  
Nikon MBN71950 FN-IR/FA IR & VIS DIC Analyzer



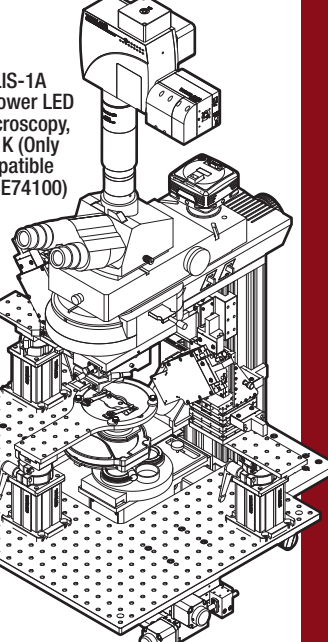
1500M-GE 1.4 MP Scientific Camera  
4070M-GE 4 MP Scientific Camera  
8050M-GE 8 MP Scientific Camera  
340M-GE Fast Frame Rate Scientific Camera  
WFA4100 1X Camera Port  
WFA4101 0.75X Camera Port  
WFA4102 0.5X Camera Port  
WFA4105 Nikon Y-TV Tube & C-Mount Adapter  
WFA4106 Nikon Y-TV Tube & 0.7X C-Mount Adapter  
WFA4107 Nikon TI-3 Tube & C-Mount Adapter  
WFA4108 Nikon TI-3 Tube & 0.7X C-Mount Adapter  
Without Trinoculars  
Step 2: Widefield Viewing Accessory  
Nikon Trinoculars w/ Eyepieces & IR Filter (WFA4000) or w/out IR Filter (WFA4001)  
Nikon Erect Image Trinoc w/ Eyepieces & IR Filter (WFA4002) or w/out IR Filter (WFA4003)



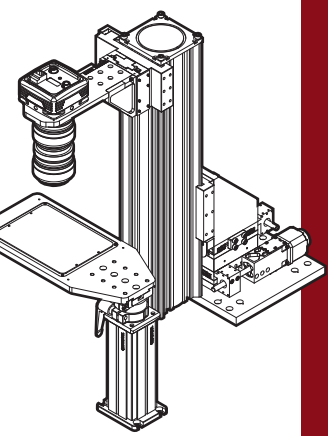
CSA3000(M) Breadboard Top  
CSA3010(M) Slim Breadboard Top  
OPX2400(M) Optical Path Conversion Kit  
Nikon MBB74105 Y-IDP Double Port  
Nikon MBD75100 FN-DP Variable Magnification Double Port  
DIY Paths  
MCWHL5 Cold White LED  
MWWHL3 Warm White LED  
M470L3 Blue (470 nm) LED  
M565L3 Lime (565 nm) LED  
Mounted High-Power LEDs (Only Compatible w/ WFA2001, Other Wavelengths are Available)



**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.

