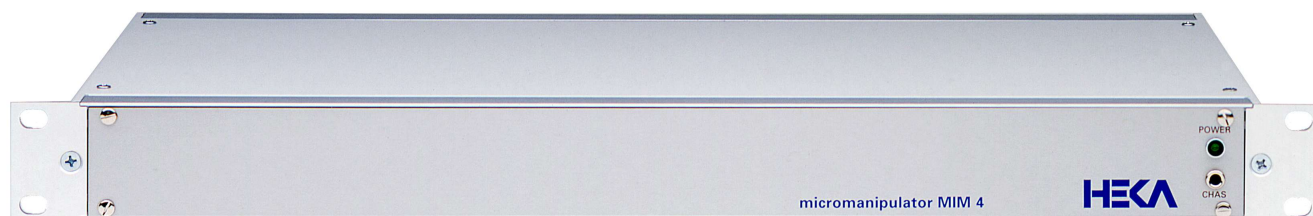


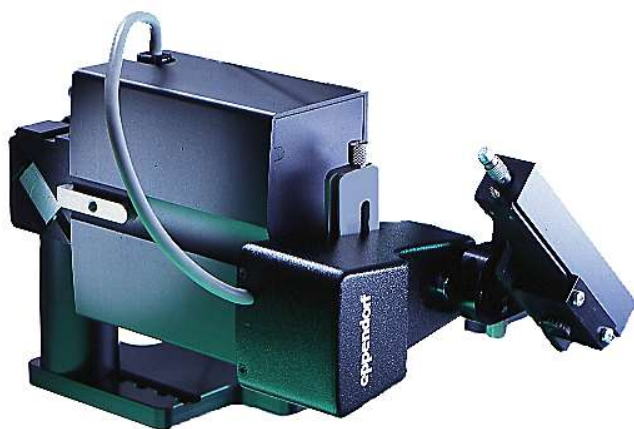


MIM 4

Motorized 3-axis Micromanipulator with Video Option



The HEKA MIM 4 micromanipulator enables an accurate and secure positioning of your micro tools and a simultaneous monitoring of the microscope image on the computer screen. With the visual control of the configuration of the experiment, mechanical distortions can easily be discovered. A new dimension of documentation of the experimental data is achieved by recording of the morphology simultaneously.



Main Features

- High mechanical stability.
- Course and fine positioning with one instrument (4 speed ranges available).
- Programmable and editable path and home functions.
- Control of MIM 4 via key board or joystick (customizable).
- Movement range of 20 mm in each axis.
- Fast operation with a maximum speed of 7.5 mm/s.
- No background noise in electrophysiological recordings.
- Usable with any microscope.

With video option

- Visual control of the configuration during your experiment.
- Display the video image on the computer monitor together with one of HEKA's data acquisition software.
- Make use of the dual head feature and display the video image on an additional TV monitor.
- Save video image for documentation of cell morphology.
- Record images at every path point or take snapshots manually at any position.

Product Components

- Micromanipulator MIM 4 and controller
- Software POS as stand alone version or extension for TIDA
- USB Joystick
- Dual-Head graphic card with video input

Product variant

- MIM 4 is also available as double micromanipulator mounted on the right and left side of the microscope. Both manipulators will be controlled with a single joystick.

Suggested accessories

- Microscope adapter for mounting the MIM 4 on the microscope frame (see Technical Specifications for supported microscope types) or manipulator column with magnetic foot.
- Video camera, BNC cable and BNC to CHINCH adapter for connecting the video camera to video input of graphic card.
- C-mount and TV-adaptor to connect the camera to the TV-port of your microscope.

The HEKA MIM 4 is more than a micromanipulator. With its video option it goes one step further than all other manipulators on the market.

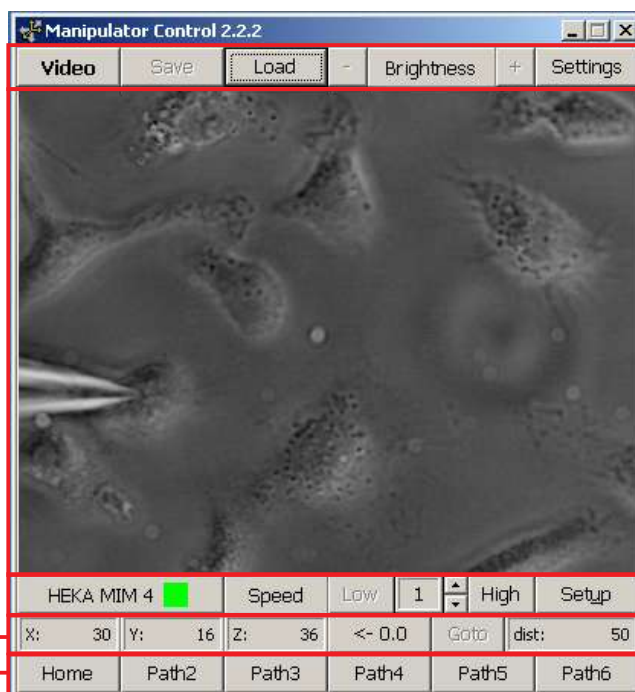
Although the MIM 4 is the ideal accessory of a HEKA EPC based patch clamp setup, it can be combined with any other system.

Position Control Panel

- Display of the current position in μm or microsteps
- Automatic calibration of zero point
- GoTo function for defined movement
- Distance to a reference point

Path Control Panel

- 6 programmable paths per manipulator for home function and tool positioning



Video Control Panel

Functions to control the video image

- Video on/off
- Save/load image
- Control of brightness, contrast etc.
- Parameters for video setting

Video Image

- Live video image
- Display of saved images

Manipulator Control Panel

- Manipulator selection
- Speed settings
- Joystick and manipulator configuration

Additional Features

- With the MIM 4, you have a video image of the specimen together with all manipulator and amplifier settings on one view on the computer screen.
- The MIM 4 with its software user interface allows to easily control and organize all path settings, even when working in a dark room.
- Display of the current position and the distance to a reference point guarantees precise repositioning of e.g. a pipette for drug application. Display of current position in μm or microsteps selectable.
- Path positions can be edited for precisely defined movements.
- The software POS can control up to four MIM 4 manipulators with one joystick.

System Requirements

- PC (minimum: Pentium II, 350 MHz, 128 MB RAM, 10 MB free harddisk space) with AGP slot, RS-232 port per manipulator unit, USB port
- Operating Systems: Windows 98SE/2000/XP
- For use with video option: Microscope with video camera (PAL/NTSC output) and accessories

Technical Specifications

- Travel distance: 20 mm (along each axis)
- Resolution: approximately 40 nm
- Four speed ranges with maximal speeds of: 15 $\mu\text{m/s}$, 150 $\mu\text{m/s}$, 1500 $\mu\text{m/s}$, 7500 $\mu\text{m/s}$
- Angle of inclination: 0°-90° relative to stage plate
- Dimensions (WxHxD)
Controller: (47.5 x 4.4 x 25.0) cm / (19.0 x 1.7 x 9.8) inch
mounts in 19" rack
Manipulator: approx. (15.0 x 10.5 x 24.0) cm / (5.9 x 4.1 x 9.8) inch
- Weight:
Controller: 2.8 kg / 6.1 lbs
Manipulator: 1.4 kg / 3.0 lbs
- Adapters are available for the following microscopes:
Hund: Wilovert 30, Leica: DMIL HC, DMIRE 2, DMIRB/E; Nikon: Diaphot/Diaphot TMD, Diaphot 200/300, Eclipse TE 200/300/2000, Eclipse TS 100; Olympus: CK-30/40/X40/X41, IMT-2, IX 50/51/70/71, IX II 80/81; Zeiss: Axiovert 25, 10/35, 100/135, 200.
- Power requirements:
100-240 V ; 50 W

General notice:

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We reserve the right to effect technical changes as development progresses. Special versions are available on request. Further technical data are provided by a detailed description, which is available on request. A guarantee of one year applies on all instruments.

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