MM3E Micromanipulator with encoded axes

Based on the hugely successful MM3A-EM micromanipulator, the **MM3E** exhibits the same degree of compactness, precision, and stability as the MM3A-EM combined with closed-loop positional feedback. This enhancement provides the means to improve the system's ease of use (e.g. by defining parking and working positions that can be addressed at the click of a button).

ACTUAL SIZE

The MM3E is fully compatible with virtually any SEM or FIB/SEM on the market. It comes with an intuitive, drag&drop-style control software which provides an easy means for positioning the tool tip in three dimensions inside your SEM or FIB/SEM tool.

The software performs coordinate transformations so that the MM3E behaves as a cartesian system with a reproducibility of a few micrometers. With the optional encoded axial rotation drive, the specimen can be rotated compucentrically in close vicinity to the sample.

Give your microscope a hand: Use the MM3E to add new capabilities and functionality to your instrument.

APPLICATIONS

- In-situ lift-out
- Electrical probing (FA)
- Nanomanipulation

PLUG-IN TOOLS

- Rotational tip
- Micrograpper
- Low current measurement kit
- Micro soldering unit
- Microinjector
- Gas Injection System
- Force measurement system

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More compact and more flexible

- Small footprint with non-cartesian axes used in a cartesian manner
- Plug-and-play system with modular components and a range of plug-in tools
- Interfacing solutions for most SEM/FIB tools
- Fast setup
- Effortless work with multiple manipulators

Clearer and simpler

- Result-oriented operation which leads to increased throughput
- Intuitive software control interface
- User-friendly and easy to learn
- Quick and easy probe tip exchange without the need to vent the chamber (with Tip Exchanger tool)

More robust and more stable

- Compact construction delivers higher resonance frequencies
- Virtually insusceptible to vibrations
- Excellent stability
- Reliable operation (one year endurance test)
- Fast pre-positioning by hand

Faster and more precise

- Extensive working range (100 cm^3)
- Coarse and fine displacement in one drive

Technical specifications

- Resolution A 7×10^{-9} rad (0.5 nm)
  Resolution B 7×10^{-9} rad (0.2 nm)
  Resolution C 0.05 nm
- Resolution axial-R $< 0.5 \times 10^{-6}$ °
- Repeatablity < 2 µm
- Repeatablity axial-R < 0.02°
- Drift < 1 nm/min
- Compucentric rotation field of view ~30 µm

Software features

- Drag&drop control in both SEM (XY) and FIB (XZ) views
- Define and store absolute positions
- Run user-generated macros
- Communication with SEM allows automatic speed adjustments, correct operation at varying scan rotations, etc.
- Precise, cartesian X,Y, and Z motion wrt the SEM's chamber
- Easy access to park, standby, and restore positions
- Can also be used to drive the (optional) coaxial rotation motor as well as the (optional) microgripper
- Compucentric rotation!

Contact us at
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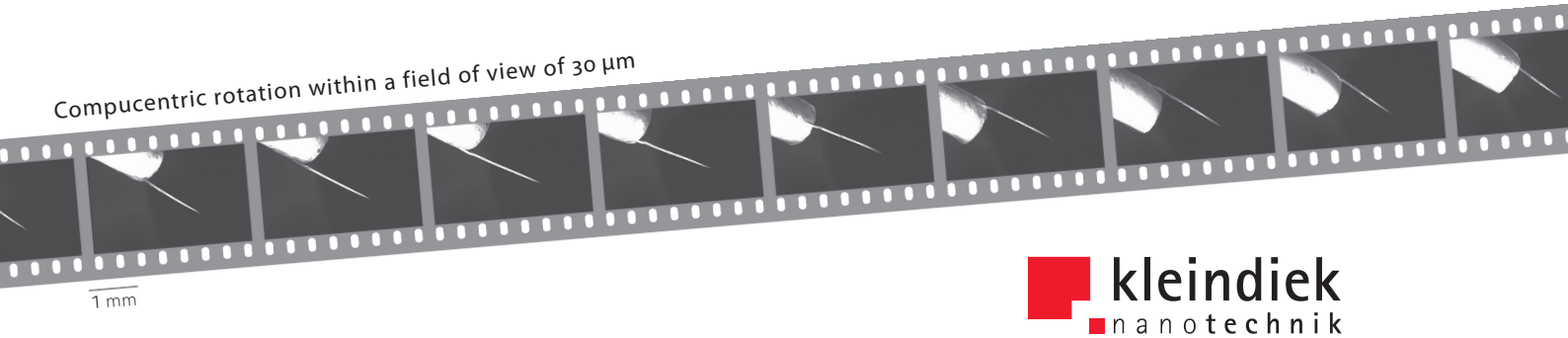
or find your local agent at
www.kleindiek.com



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