Over the last few years, the MM3A-EM micromanipulator has created an unparalleled new dimension of quality in the field of Electron Microscopy. It is employed in a wide spectrum of SEM, FIB and other microscopes for an even wider range of applications and it has become the industry standard for OEM and retrofit solutions.

**Give your microscope a hand:** use the MM3A-EM to add new capabilities and functionality to your instrument.

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**APPLICATIONS**

<table>
<thead>
<tr>
<th>Electrical probing (FA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nanomanipulation</td>
</tr>
<tr>
<td>In-situ lift-out</td>
</tr>
<tr>
<td>Materials science</td>
</tr>
</tbody>
</table>

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**PLUG-IN TOOLS**

<table>
<thead>
<tr>
<th>Micro four-point probe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microgripper</td>
</tr>
<tr>
<td>Rotational tip</td>
</tr>
<tr>
<td>Low current measurement kit</td>
</tr>
<tr>
<td>Safe tip approach</td>
</tr>
<tr>
<td>Microinjector</td>
</tr>
<tr>
<td>Force measurement system</td>
</tr>
</tbody>
</table>
MM3A-EM Micromanipulator

More compact and more flexible
- Small and practical
- Plug-and-play system with modular components
- Interfacing solutions for most SEM/FIB instruments (including load lock)
- Fast setup and removal
- Effortless work with multiple manipulators
- Useful plug-in tools

Clearer and simpler
- Result-oriented operation which leads to increased throughput
- Intuitive control interfaces and software
- User-friendly and easy to learn
- Quick and easy probe tip exchange
- Compact, stand-alone electronics
- Pioneering cabling technology with compact vacuum feedthrough

More robust and more stable
- Compact construction delivers higher resonance frequencies
- Excellent stability
- Low drift (1 nm/min)
- Reliable operation (one year endurance test)
- Virtually insusceptible to vibrations
- Fast pre-positioning by hand

Faster and more precise
- No backlash or reversal play
- Sub-nanometer resolution (0.25 nm)
- Extensive working range (100 cm³)
- No “blind axis” like with cartesian systems
- Coarse and fine displacement in one drive
- High operating velocity (up to 10 mm/sec)

Technical specifications
- Length 60 mm
- Width 22 mm
- Height 25 mm
- Weight 45 g
- Operating range AB 240°
- Operating range C 12 mm
- Piezo range A $4 \times 10^{-4}$ rad (20 µm)
- Piezo range B $4 \times 10^{-4}$ rad (15 µm)
- Piezo range C 1 µm
- Speed AB up to 10 mm/s
- Speed C up to 2 mm/s
- Resolution A $10^{-7}$ rad (5 nm)
- Resolution B $10^{-7}$ rad (3.5 nm)
- Resolution C 0.25 nm
- Holding force 1 N
- Holding torque 3 to 4 Nmm
- Lift Y 5 g
- Probing current range 10 nA to 100 mA
- Maximum probing voltage 100 V
- Probing signal resistance 7.0 Ω
- Temperature range 273 K to 353 K
- UHV version 273 K to 393 K
- Low temp. version 77 K (4 K*) to 393 K
- Lowest pressure $2 \times 10^{-10}$ mbar
- UHV version $2 \times 10^{-10}$ mbar
- Mounting M4 tapped hole
- Material Stainless steel, aluminium

* Requires special control unit

Contact us at info@nanotechnik.com
or find your local agent at www.nanotechnik.com