

## MM3A-LS Micromanipulator

The MM3A-LS micromanipulator is employed by scientists around the world for highly sensitive electrophysiological recordings. It is renowned for long-term stability and precision and has earned Kleindiek Nanotechnik a reputation for top-of-the-line manipulation solutions.



ACTUAL SIZE

### APPLICATION

Patch clamp

### ACCESSORIES

Cube controller

Fine range booster



# MM3A-LS Micromanipulator

## More compact and more flexible

- Small and practical
- Plug-and-play system with modular components
- Interfacing solutions for all light microscopes
- Fast setup and removal
- Effortless work with multiple manipulators

## 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 pipette exchange
- Compact, low-noise electronics
- Reduced interference due to pioneering cabling technology

## 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 unsusceptible 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 cm<sup>3</sup>)
- 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 62.1 mm
- Width 20.4 mm
- Height 25.4 mm
- Weight 45 g
- Operating range AB 240°  
Operating range C 12 mm
- Piezo range A  $4 \times 10^{-4}$  rad (20  $\mu$ m)  
Piezo range B  $4 \times 10^{-4}$  rad (15  $\mu$ m)  
Piezo range C 1  $\mu$ m
- 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
- Temperature range 273 K to 353 K
- Lowest pressure Not vacuum compatible
- Mounting Magnetic
- Material Stainless steel, aluminium

A = LEFT/RIGHT  
B = UP/DOWN  
C = IN/OUT

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