

## *Ultraprecise Micromanipulator*



Ultraprecise Manual Control  
Micromanipulator, Micropipette not included

- Available with manual control or motorized control

### *Ultraprecise Motorized Control Micromanipulator*

This ultraprecise motorized control micromanipulator is offered either with stepper motors on two axes or on all three axes. These motors are controlled by a precision controller that is supplied with the instrument. The same micrometers are used, as with the manual version, with a travel of 25 mm (1 in). The controller provides fast motor speed of 9 revolutions/sec which allows a maximum velocity of 36 mm/sec. Speed is infinitely variable to a slowest speed of 40,000 steps per revolution which corresponds to 0.01  $\mu\text{m}$  per step. Only by these extremely small single steps can an operator be assured of essentially vibration-free movement. The controller works in a vector mode, that is, the target coordinates are approached directly in a straight line from the starting point. In all modes there are end stop switches.

The movement can be programmed on a thumb wheel switch and is started by a press button. Alternatively, advance and retraction may be controlled by manual operation of buttons. A return button causes the probe to be retracted to the zero position. The Motorized Controller is available with or without a display. The Controller with Display monitors the location of the probe on a six digit LED counter. A clear button resets the position to zero. Movement may also be made by joystick. These joystick movements are also monitored and may be both displayed on the controller and read via the RS-232 interface. The Controller may be used either alone or computer driven via the RS-232 interface. Power 115/230 VAC, 50/60 Hz.

### *Ultraprecise Manual Control Micromanipulator*

The base of the manual micromanipulator is in keeping with the mass and stability of the entire instrument. It is 14 x 14 cm (5-1/2 x 5-1/2 in), has a three point rest and is bored for four M6 bolts. The large diameter micrometer spindles on each axis have fine adjustment only with 25 mm (1 in) of travel that can be read direct to 5  $\mu\text{m}$  and interpolated to a 1  $\mu\text{m}$  positioning resolution.

The entire micromanipulator can be tilted forward up to 25° so that cells can be penetrated along the axis of one of the drives. The same locking screw that controls the tilt also provides coarse height adjustment. The probe holder has multiple locking swivels allowing it to be positioned at any angle relative to the X, Y or Z axes.

| Ultraprecise Motorized Control Micromanipulator |                     |            |
|---|---------------------|------------|
| Controller                                      | With Stepper Motors |            |
|   | On 2 Axes           | On 3 Axes  |
| With Display                                    | CGS8073.38          | CGS8075.38 |
| Without Display                                 | CGS8074.38          | CGS8076.38 |

| Catalog No. | Product                                      |
|-------------|--|
| CGS 8077.38 | Ultraprecise Manual Control Micromanipulator |