

OTS 5000 Tissue Slicer

INSTRUMENTATION AND MICROELECTRODES FOR NEUROSCIENCE RESEARCH

The OTS5000 is used for sectioning slice samples for use in the fields of electrophysiology of fresh tissue, immunocytochemistry and immunohistochemistry, histology, cytology, botanical research, and polymer science.



The new design of the slicer head minimizes Z-axis vibration, which dramatically improves slice surface integrity. This improvement is especially useful for fresh tissue where IR/DIC imaging methods are used.

To reduce the blade travel time between slices, the OTS5000 features a user-programmable travel window. This allows the user to set the range of blade travel customized to the specimen sample, reducing the time between slices. Once the range is set, the START/STOP button is used to toggle the sectioning sequence.

The OTS5000 allows the user to section in two different modes. In manual slice mode, the user

can perform all movements of the blade arm using the keypad, or a combination of the keypad and footswitch. In multiple slice mode, the OTS5000 will automatically perform repeatable sequences.

The tray is made of molded clear polycarbonate for improved viewing of the slice operation. The tray is removable to facilitate specimen mounting and cleaning. Two focused LED's are installed in the blade head, which provide constant cold illumination of the specimen during the slicing process.

Two specimen mounting options are available to the user; a pedestal with forward/backward and side to side tilting adjustments, and a vise and mounting block (2 sizes provided) assembly. The blocks are used to quickly interchange multiple specimens on individual blocks.

The front panel of the OTS5000 has precise bar graph displays of the blade oscillation and advance speeds. A large, three digit display shows the number of slices performed, and the current slice thickness setting. (The display toggles when either of the thickness keypad buttons are pressed once.)

The modular configuration of the keypad allows for ambidextrous and ergonomic operation. The keypad incorporates membrane switch technology for durability and reliability in the laboratory environment.

The blade head is removable for occasional cleaning and maintenance. The blade clamp is designed to accept razor, sapphire, diamond, and glass blades.

A separate self-contained refrigeration system will be made available soon as an option.

Features

- New slicer head design minimizes vibration that causes tissue distortion.
- User defined "travel window" reduces blade travel time between sections.
- User selectable multiple slice mode for "hands-free" preparation of many slices.
- Consistent live tissue slices of 10 microns achieved.
- Membrane switch keypad, separate from module, isolates circuitry from solutions, reduces "handedness", and improves ergonomics.
- Slice thickness up to 999 microns, set in 1 micron increments.
- Focused LED's mounted to blade arm for constant, direct, cold-source illumination.
- Two specimen mounting options: XY adjustable pedestal or vise/block arrangement.
- Removable, easy to clean tray.
- Accepts Razor, Glass, Diamond, and Sapphire blades.
- Precise bar graph displays of blade oscillation and advance speeds.
- Large LED display of slice counter/slice thickness.
- Removable X2 magnifier lens swings away when not in use.

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Specifications & Ordering Information

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Specifications

Vertical Travel: 28mm
Slice Thickness: adjustable from 1 to 999 microns in 1 micron increments
Blade Speed: adjustable from 50 - 5000 cycles per minute
Blade Angle Adjustment: adjustable from 15 to 35 degrees
Blade Travel: 35mm total
Blade Types: Sapphire, Razor, Diamond, Glass
Blade Advance Speed: continuously adjustable from 0 – 2.5mm per second
Blade Reverse Speed: 2.5mm per second
Specimen Size: 25(w) x 25(d) x 15(h) mm maximum volume.
Magnifier: 4" diameter, X2 lens mounted on 12" (30cm) gooseneck, 9" working distance
Lighting: Focused LED's mounted on the blade arm.
Dimensions:
 Slicer: 27cm x 40cm x 21.5cm (10.5" x 16" x 7.5")
 Keypad: 17cm x 8.5cm x 3.4cm (6.7" x 3.4" x 1.35")
Weight: 13kg (30lbs)
Working space requirements: 12"w x 18"d x 10"h (30 x 45 x 25cm).
Power requirements: 85-265 VAC, 50-60Hz, 500mA Max universal power input.
Display: 3 segment LED display of slice counter and thickness. (Changes with appropriate buttons.)
 20 segment bar graph LED display of blade oscillation and advance speed.
Specimen Mount: X,Y axis adjustable pedestal: 1 3/4" x 2 1/2"
Mounting blocks : 1/2" x 1/2x 1/2" (3 ea.)
 1" x 1" x 1" (3 ea.)



Ordering Information

1 ea. 85-00-1 OTS 5000 includes: OTS 5000, OTS Footswitch, OTS Tray, OTS Magnifier, OTS Pedestal, OTS Specimen Vise, OTS Mounting Blocks (2 sizes), Stainless Steel Slicer Blade(25 ea.), 1/16" Hex Driver, A993 Manual

REQUIRED FOR OPERATION , ordered separately:

1 ea. 55-XXX Line cord as specified from the following:

55-AUS	Australia	55-JA	Japan
55-CH	China	55-SAF	South Africa
55-DAN	Denmark	55-SWI	Switzerland
55-EURO	Europe	55-UK	United Kindom
55-ISR	Israel	55-USA	North America
55-ITA	Italy		

Replacement items:

80-11-6	Stainless Steel Slicer Blades
80-12-2	OTS Mounting Blocks (1/2")
85-12-0	OTS Mounting Blocks (1")
85-13-0	OTS Specimen Vise
85-00-2	OTS Tray
85-00-3	OTS Pedestal
85-00-4	OTS Magnifier
85-00-5	OTS Footswitch

Optional Accessories:

80-12-1	Glass Blade Holder
85-00-3	OTS Pedestal Surface
85-00-6	OTS Sapphire Blades

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Illustrative Procedure

neuro/craft™

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Illustrative Procedure

The OTS5000 can be operated in two modes. In manual slice mode, the user can perform all movements of the blade arm using the keypad, or a combination of the keypad and footswitch. In multiple slice mode, the OTS5000 will automatically perform repeatable sequences.

1. Ensure that the OTS5000 is installed correctly.
2. Activate power to the unit and position the blade arm at the full up and back ("Home") position by pressing the HOME button on the keypad.
3. Remove the tray from the unit by loosening the two thumbscrews on both sides of the bottom of the tray. Slide the tray forward off of the base.
4. Remove the pedestal from the tray. The pedestal can be removed by loosening the post thumbscrew a half turn. Grasp the thumbscrew and pivot pin, lift the pedestal straight up. Alternately, remove the vise in the same manner if using the vise/mounting block arrangement.
5. Prepare the bath medium. Set aside a small amount in a beaker. Place both in an ice bath or other to cool.
6. Clean the pedestal surface or mounting block. Ensure that the surface is completely dry.
7. Rapidly excise the tissue. Cut the structure of interest into a block leaving a minimum of excess (particularly connective) tissue. Continuously bathing the tissue with an eyedropper of cooled medium during the trimming process is suggested.
8. Turn the side of the tissue to be bonded up and blot as dry as possible. Apply a thin layer of tissue adhesive to the pedestal or block surface, and immediately position the dry side of the sample on it, ensuring that a strong bond is made.
9. Position the pedestal in the tray. Orient the pedestal angle if desired. Alternately secure the mounting block in the vise. Position the vise/block setup in the tray.
10. Immediately fill the tray with cooled, oxygenated medium. Ensure that the sample is covered by a millimeter or two.
11. Position a new blade in the blade holder and tighten securely. Cleaning both slides of the blade with acetone or alcohol is suggested. Set the blade angle, being careful not to touch the blade edge.
12. Set the Advance speed to 15-20, using the appropriate keypad buttons, to position the blade to an initial slicing position behind the sample.
13. If slicing in Multiple Slice mode, set the reverse limit at this point by pressing the REVERSE LIMIT button in the TRAVEL WINDOW section of the keypad.
14. Set the Oscillation and Advance speeds using the appropriate keypad buttons to perform the initial slice. It is a good practice to make the first slice rather large to initially prepare the sample.
15. Press the FORWARD button on the keypad once to begin the slice process. When the blade has cleared the slice sample, press the FORWARD button again to stop.
16. If slicing in Multiple Slice mode, set the forward limit by pressing the FORWARD LIMIT button in the TRAVEL WINDOW section of the keypad.
17. Once the initial slice is performed, press the REVERSE button once to return the blade to a convenient position behind the sample. Press the REVERSE button again to stop movement. Alternately, press the START/STOP button to reposition the blade to the travel window Reverse limit.
18. Reset the Oscillation and Advance speeds if desired to begin performing slices of the desired thickness in either Manual or Multiple Slice mode.
19. Perform slices by either manually performing all blade arm movements using the keypad (or footswitch and keypad combination), or using the START/STOP button to begin slicing within the set Travel Window.
20. When slicing and harvesting is completed, discard the medium and any unused samples. Clean the surface of the pedestal or block by scraping with a used blade and wash with acetone or alcohol.



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