



501622/501623

Universal Manipulator Stand

INSTRUCTION MANUAL

Serial No. _____

011315



World Precision Instruments

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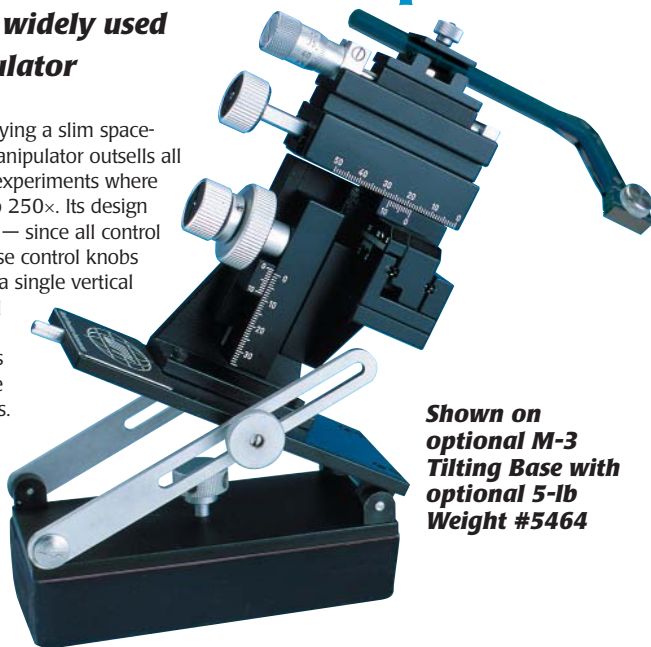
M3301 Manual Micromanipulator

***The world's most widely used
micromanipulator***

Weighing just 550 grams and employing a slim space-saving design, this well-built micromanipulator outsells all others worldwide for high precision experiments where magnification is in the range of up to 250 \times . Its design allows units to stand tightly grouped — since all control knobs project to the rear. And because control knobs are clustered within an 8 cm area in a single vertical plane, resolution is quick — the hand works blindly while the eye monitors the microscopic image. Vernier scales allow readings to 0.1 mm; x-axis fine control allows readings to 10 microns.

The instrument employs rack-and-pinion drive, V-shaped guideways, and cross roller bearings, so all movement is sure and repeatable, without drift, sideplay, backlash, or sticking. Contact parts are milled of hardened steel for high performance and long life.

Left- or right-handed versions of the M3301 are supplied with a **standard 12 mm clamp (M2)** and **one microelectrode holder (M3301EH)**.



***Shown on
optional M-3
Tilting Base with
optional 5-lb
Weight #5464***

M3301R	Manual Manipulator, right-handed
M3301L	Manual Manipulator, left-handed
M3301-M3-R	Manual Manipulator (right handed) & Tilting Base
M3301-M3-L	Manual Manipulator (left handed) & Tilting Base
502105	Axis Adjustment Tool

M10 Magnetic Stand

Similar to M1 but with a 12 mm diameter sub pole (fits 12 mm clamp supplied with M3301, DC3001, MD4 and MMJ manipulators).

Magnetic Base:

50 (w) x 58 (l) x 55 (h) mm
(2.0 x 2.3 x 2.2 in.)

Vertical Holding Power:

80 kgf (176 lb force)

Main Pole:

diameter: 14 mm (0.55 in.)
length: 178 mm (7 in.)

Sub Pole:

diameter: 12 mm (0.47 in.)
length: 165 mm (6.5 in.)

Clamp Hole:

Adjustable from 4.5 mm to 6.5 mm

Weight:

1.8 kg (4 lb)



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ABOUT THIS MANUAL

The following symbols are used in this guide:



This symbol indicates a CAUTION. Cautions warn against actions that can cause damage to equipment. Please read these carefully.



This symbol indicates a WARNING. Warnings alert you to actions that can cause personal injury or pose a physical threat. Please read these carefully.

NOTES and TIPS contain helpful information.

INTRODUCTION

The Universal Manipulator Stands allow you to mount a variety of manual and motorized micromanipulators at a range of heights and angles. The base is solid aluminum, and it is configured with industry standard, pre-bored holes (1/4 x 20 x 1" or M6 x 25mm). This allows for direct mounting to any type of vibration-free table or optical bench. The extruded tower is either 30cm (WPI #501622) or 45cm (WPI #501623). The height of the mounted micromanipulator may be set to any height along the entire length of the stand. Each stand includes one rotation clamp. With the purchase of extra rotation clamps (WPI #501624), additional micromanipulators may be mounted on the stand.

Parts List

After unpacking, verify that there is no visible damage to the sensor. Verify that all items are included (Fig. 1):

- (1) Base plate
- (1) Post (30mm or 45mm)
- (1) Rotation clamp with handle
- (5) **M8** Base assembly screws
- (2) **M4** Manipulator mounting screws
- (2) 1/4"x20 Thumb screws with washers for English tables (SAE)
- (2) M6x1 Thumb screws with washers for metric tables
- (1) 3.0mm Hex wrench
- (1) 6.0mm Hex wrench
- (1) **300561** UMS Spacer Kit
- (1) Instruction Manual

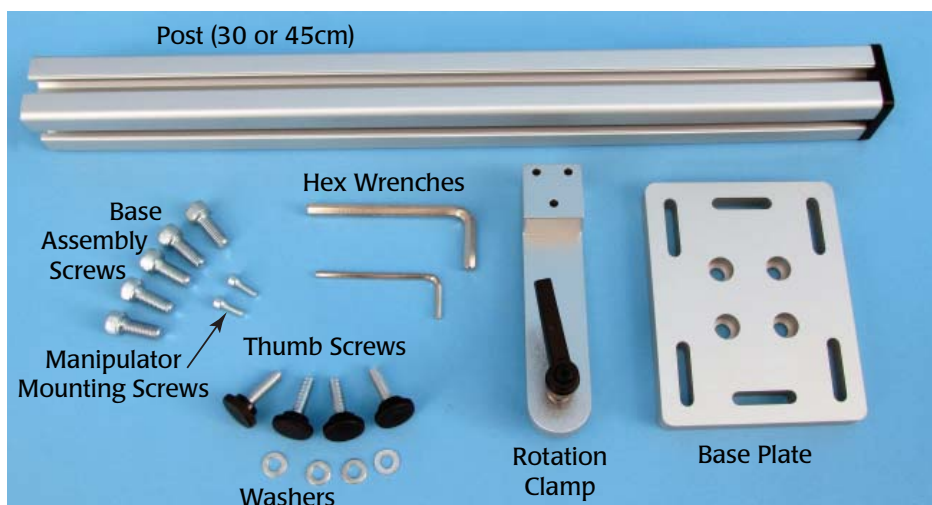


Fig. 1—Parts of the unassembled Universal Manipulator Stand

Unpacking

Upon receipt of this instrument, make a thorough inspection of the contents and check for possible damage. Missing cartons or obvious damage to cartons should be noted on the delivery receipt before signing. Concealed damage should be reported at once to the carrier and an inspection requested. Please read the section entitled "Claims and Returns" on page 7 of this manual. Please contact WPI Customer Service if any parts are missing at 941.371.1003 or customerservice@wpiinc.com.

Returns: Do not return any goods to WPI without obtaining prior approval (RMA # required) and instructions from WPI's Returns Department. Goods returned (unauthorized) by collect freight may be refused. If a return shipment is necessary, use the original container, if possible. If the original container is not available, use a suitable substitute that is rigid and of adequate size. Wrap the instrument in paper or plastic surrounded with at least 100mm (four inches) of shock absorbing material. For further details, please read the section entitled "Claims and Returns" on page 7 of this manual.

ASSEMBLY INSTRUCTIONS

1. Disassemble the rotation clamp assembly by rotating the handle counter clockwise. Remove the insert (Fig. 2).

NOTE: Hold the rotation clamp securely as you unscrew the handle. The spring can cause the pieces to fly apart.

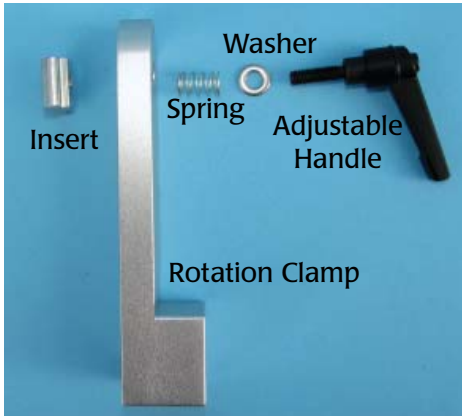


Fig. 2—Rotation clamp and handle disassembled

2. Slide the insert from the rotation clamp assembly into the extrusion channel at the bottom of the post (Fig. 3).



Fig. 3—(Left) Insert is oriented so the screw hole is facing out.



Fig. 4—(Right) Position the rotation clamp.

3. Reposition the washer, spring and rotation clamp on the adjustable handle and screw the handle back into the insert. Before tightening the handle, slide the rotation clamp up the manipulator stand to the desired position.
4. Turn the post upside down. Align the holes on the base plate with the holes in the bottom of the post. The flat side of the base plate faces the post so that when the base assembly screws are installed, the screw heads are flush with the bottom of the base plate (Fig. 5). Insert four base assembly screws and use the 6mm hex wrench to tighten them securely.



Fig. 5—(Left) Secure the base to the post.

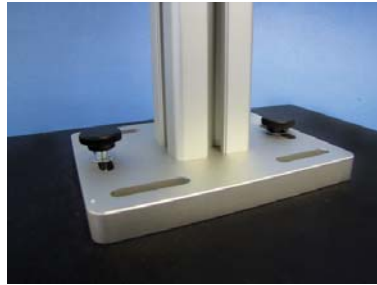


Fig. 6—(Right) The base is mounted to the table.

5. Use the appropriate two thumb screws (with washers) to secure the manipulator stand to the table (Fig. 6). The two 1/4" x 20 thumb screws are for use with English tables (SAE), and the two M6 x 1 thumb screws are for use with metric tables.

ADJUSTING THE HANDLE

The spring-loaded handle can be disengaged from the clamping screw and rotated to 16 different positions. Lift the handle, rotate it to the desired position and release the handle to re-engage the clamping screw.

MOUNTING A MICROMANIPULATOR

Use the two M4 manipulator mounting screws to secure the micromanipulator to the rotation clamp (Fig. 7).

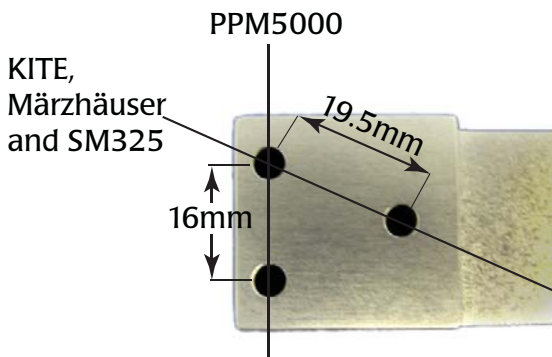


Fig. 7—Choose two holes to mount the micromanipulator

NOTE: Three holes are available on the rotation clamp, but only two are used to secure a micromanipulator. The **KITE**, Märzhäuser and **SM325** use two holes set on the diagonal (~19.5mm apart). The **PPM5000** uses the two vertical holes, (~16mm apart). **M325** will not mount on this stand.

Using the Spacer

The **300561** Spacer is designed for use with the **UMS** Universal Manipulator Stand. It is used to offset the manipulator so that the vertical post does not interfere when tilting the manipulator.

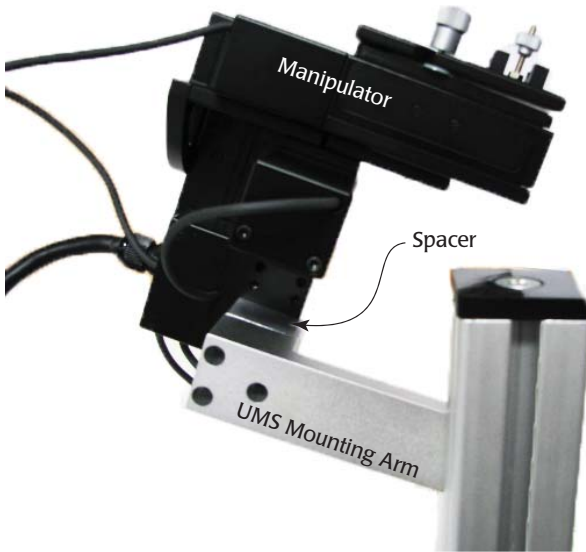


Fig. 8—The manipulator is mounted on the stand with the spacer attached to the arm of the UMS.

1. Position the horizontal arm of the **UMS** stand so that the weight of the manipulator serves to tighten the horizontal arm against the vertical post. The correct orientation is shown in Fig. 9. In this position, the weight of the manipulator serves to tighten the arm, so that it doesn't loosen and fall.



Fig. 9—The properly position the arm of the manipulator is shown in the image on the left. The incorrectly positioned arm is shown on the right.

2. It may be necessary to remove the ring clamp from the manipulator (Fig. 10). Only two screws will align with the screw holes. Line up the holes in the **300561** spacer with the holes in the manipulator arm. Then, slide the screws through both the manipulator arm and the spacer.



Fig. 10—(Left) If necessary, remove the ring clamp from the manipulator.
Fig. 11—(Right) Run two screws through the UMS arm and through the spacer as shown.

3. Line up the holes on the screws in the spacer with the threaded holes on the manipulator. Use a 3mm hex wrench to tighten the two screws.



Fig. 12—(Left) Line up the screws with the holes in the manipulator.
Fig. 13—(Right) Tighten the screws with a 3mm hex wrench.

SPECIFICATIONS

This unit conforms to the following specifications:

	501622	501623
Base Plate Dimensions	10.0 x 12.2 x 1.5cm	10.0 x 12.2 x 1.5cm
Post Dimensions	4.0 x 4.0 x 30cm	4.0 x 4.0 x 45cm
Shipping Weight	4kg (9 lb.)	5kg (11 lb.)
Mounting Screws	English: 1/4 x 20 x 1" Metric: M6 25mm grid	

WARRANTY

WPI (World Precision Instruments, Inc.) warrants to the original purchaser that this equipment, including its components and parts, shall be free from defects in material and workmanship for a period of one year* from the date of receipt. WPI's obligation under this warranty shall be limited to repair or replacement, at WPI's option, of the equipment or defective components or parts upon receipt thereof f.o.b. WPI, Sarasota, Florida U.S.A. Return of a repaired instrument shall be f.o.b. Sarasota.

The above warranty is contingent upon normal usage and does not cover products which have been modified without WPI's approval or which have been subjected to unusual physical or electrical stress or on which the original identification marks have been removed or altered. The above warranty will not apply if adjustment, repair or parts replacement is required because of accident, neglect, misuse, failure of electric power, air conditioning, humidity control, or causes other than normal and ordinary usage.

To the extent that any of its equipment is furnished by a manufacturer other than WPI, the foregoing warranty shall be applicable only to the extent of the warranty furnished by such other manufacturer. This warranty will not apply to appearance terms, such as knobs, handles, dials or the like.

WPI makes no warranty of any kind, express or implied or statutory, including without limitation any warranties of merchantability and/or fitness for a particular purpose. WPI shall not be liable for any damages, whether direct, indirect, special or consequential arising from a failure of this product to operate in the manner desired by the user. WPI shall not be liable for any damage to data or property that may be caused directly or indirectly by use of this product.

Claims and Returns

Inspect all shipments upon receipt. Missing cartons or obvious damage to cartons should be noted on the delivery receipt before signing. Concealed loss or damage should be reported at once to the carrier and an inspection requested. All claims for shortage or damage must be made within ten (10) days after receipt of shipment. Claims for lost shipments must be made within thirty (30) days of receipt of invoice or other notification of shipment. Please save damaged or pilfered cartons until claim is settled. In some instances, photographic documentation may be required. Some items are time-sensitive; WPI assumes no extended warranty or any liability for use beyond the date specified on the container

Do not return any goods to us without obtaining prior approval and instructions from our Returns Department. Goods returned (unauthorized) by collect freight may be refused. Goods accepted for restocking will be exchanged or credited to your WPI account. Goods returned which were ordered by customers in error are subject to a 25% restocking charge. Equipment which was built as a special order cannot be returned.

Repairs

Contact our Customer Service Department for assistance in the repair of apparatus. Do not return goods until instructions have been received. Returned items must be securely packed to prevent further damage in transit. The Customer is responsible for paying shipping expenses, including adequate insurance on all items returned for repairs. Identification of the item(s) by model number, name, as well as complete description of the difficulties experienced should be written on the repair purchase order and on a tag attached to the item.

** Electrodes, batteries and other consumable parts are warranted for 30 days only from the date on which the customer receives these items.*



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