



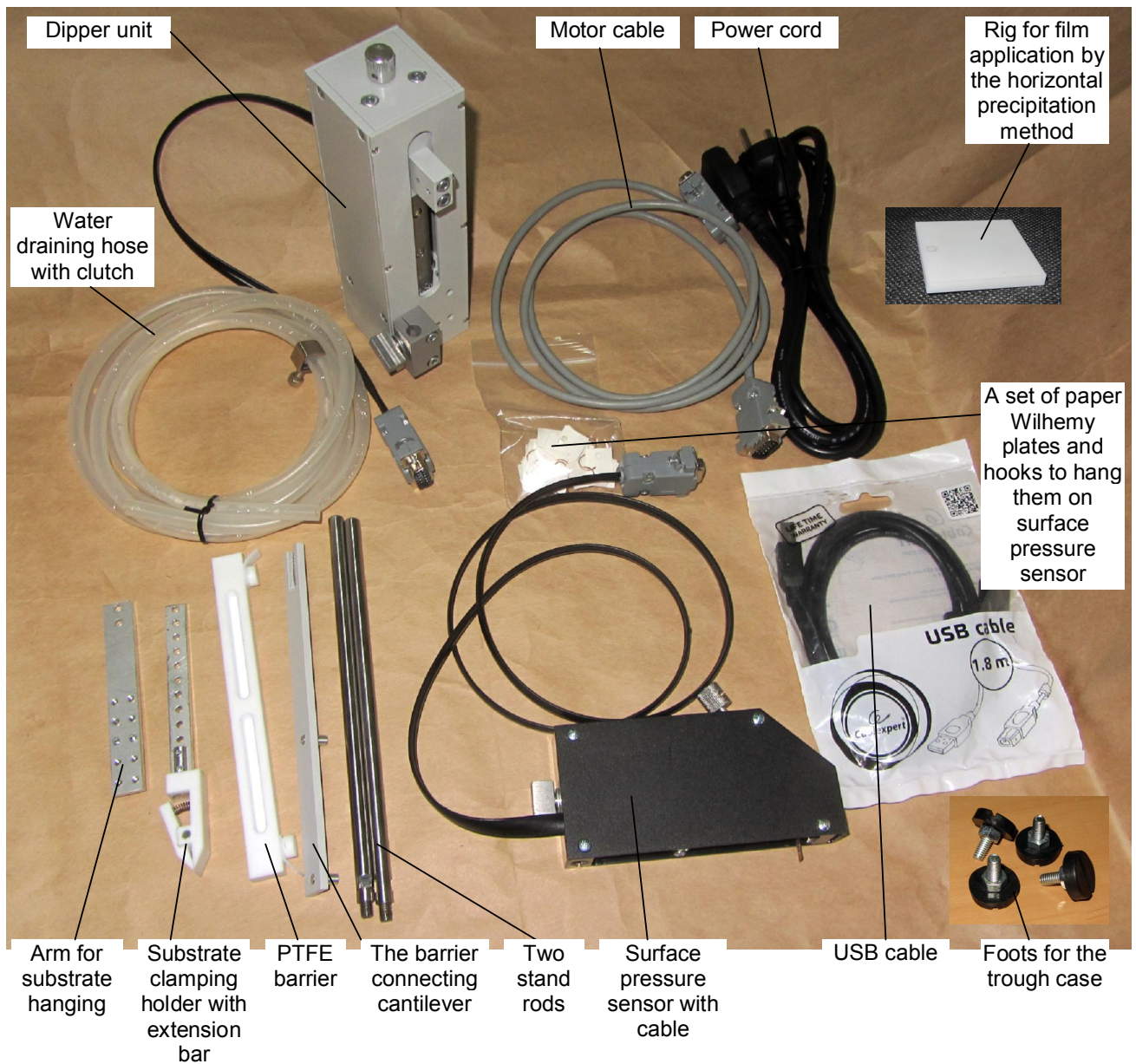
MICROTESTMACHINES Co.

Assembling LB trough  
**LT-111**  
to start operation

## A complete set of LT-111 LB trough



After unpacking the box with LT-111: Control electronic unit (left) and LB trough (right)



After unpacking the box with LT-111: units, components, accessories



## A guide for LT-111 assembling after unpacking

1. Screw four foots into the trough case from bottom.

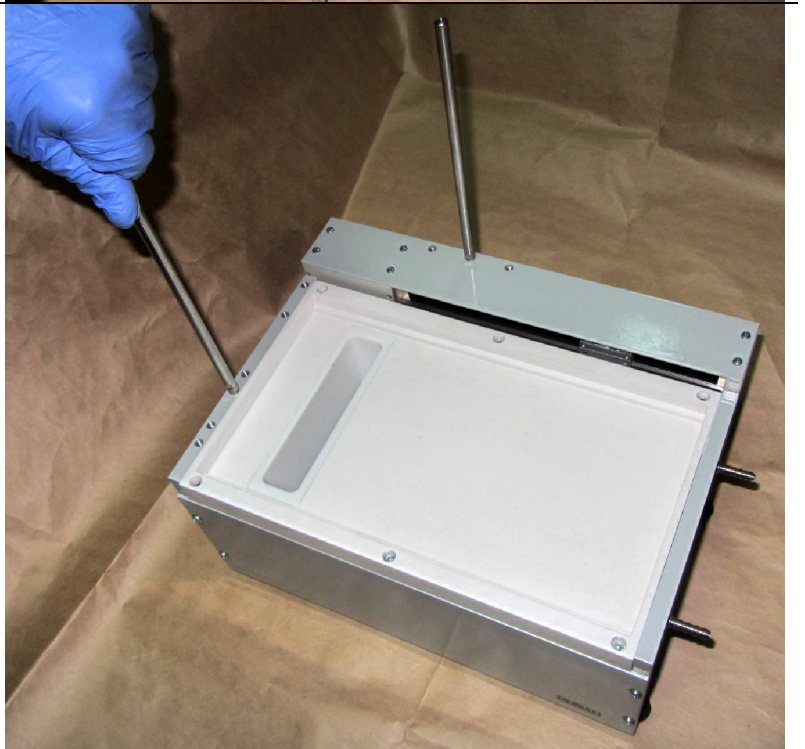


2. Connect the draining hose to the nozzle on the trough dipping well bottom.



Recommendation: Every time, before filling the trough with water (or other liquid), check if the clutch on draining hose is closed.

3. Screw two mounting rods in holes on left wall and rear side (example is shown in picture).



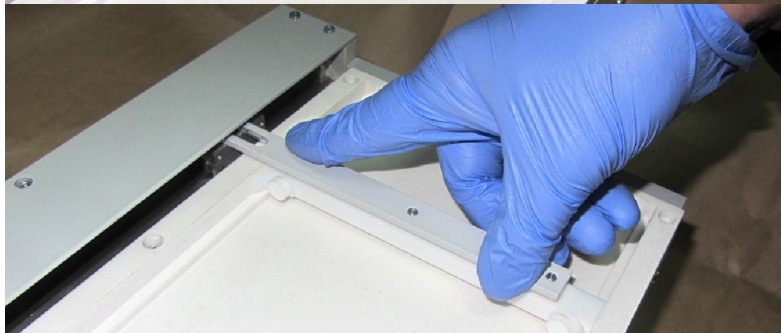
4. Insert PTFE barrier into trough with flaps directed inside working area. Slots should be on upper side of the barrier so that teeth on connecting cantilever could be inserted in them.



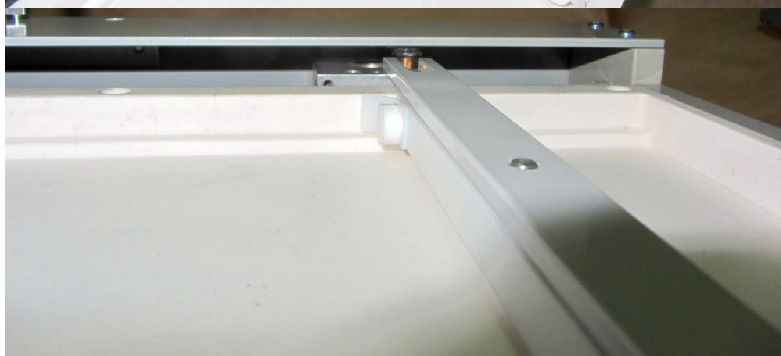
5. Insert connecting cantilever with two teeth into slots on top of the PTFE barrier.



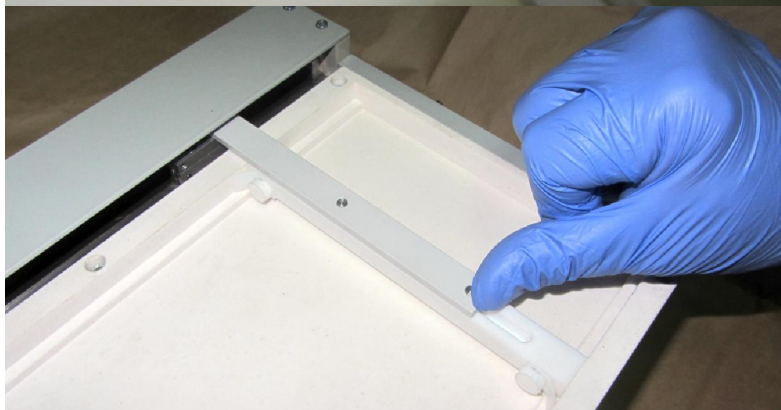
To provide enough space for rear portion of the cantilever, insert the teeth as close to the front of the trough (and barrier) as possible.



Slide the cantilever together with the barrier in the trough to position the cantilever fork opposite brass jut on the carriage top (under the upper protection cover). The carriage top and the jut are visible if to look directly from the trough front.



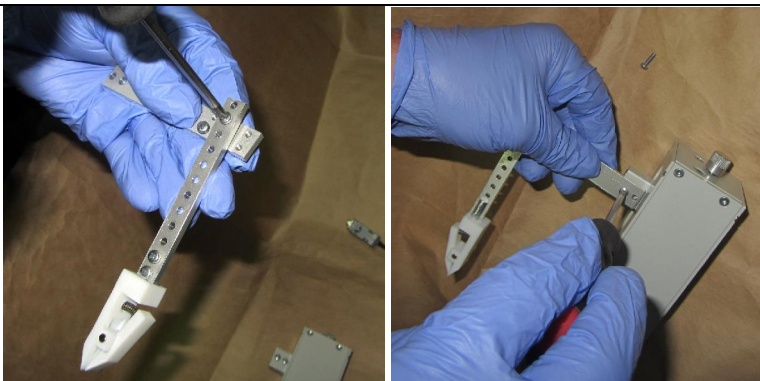
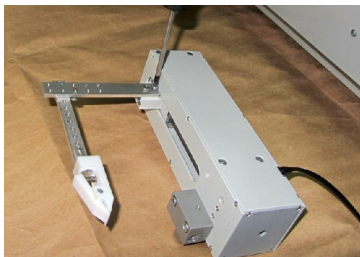
When the fork is right opposite the brass jut on the carriage top, push the cantilever from front to the rear side so that it connects with the carriage.



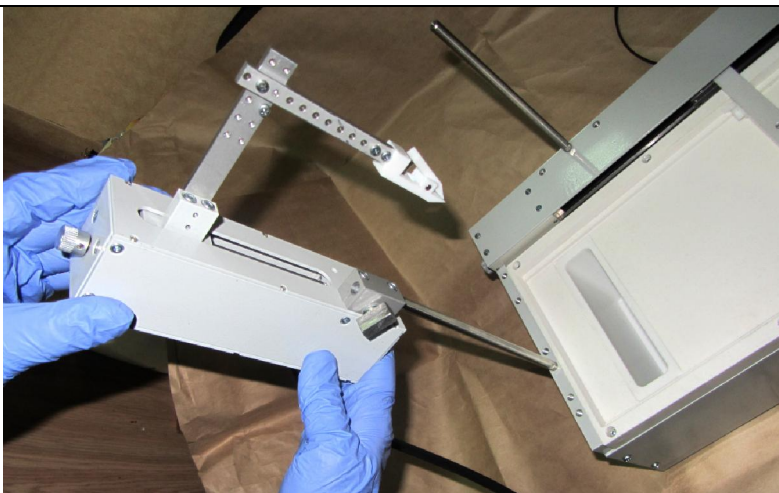
Performing the steps in reverse order, you can then disconnect the cantilever to release the barrier for careful cleaning or washing outside the trough if necessary.



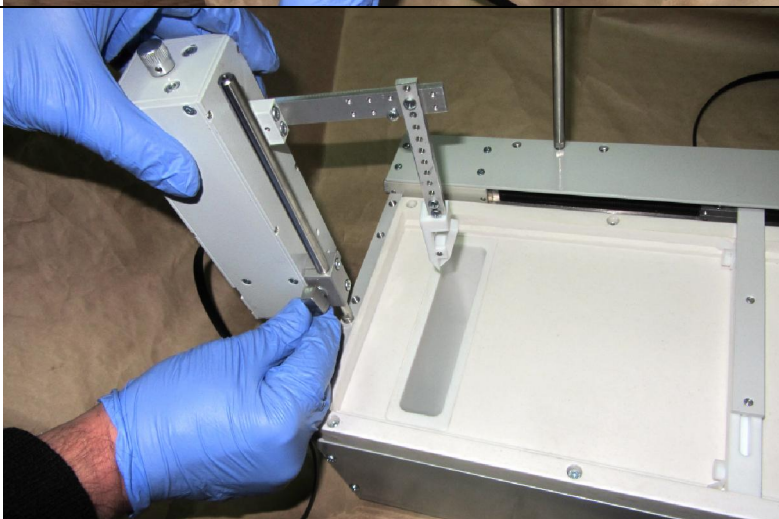
6. Install the dipper arm: screw extension bar of the substrate clamping holder to the horizontal arm and then screw the arm to the block on the dipper unit front panel. Use two screws to fix the arm on the block firmly.



7. Mount the dipper unit on left side stand.



8. Adjust vertical position of the dipper unit and fix it on the stand with the clamping screw



9. Connect cable of the dipper unit to connector on left wall of the trough (under the barrier drive knob).



10. Connect one end of motor cable to the socket on rear wall of the trough (under barrier motion mechanism). The ends of the cable are equivalent, therefore don't care what the end is correct.



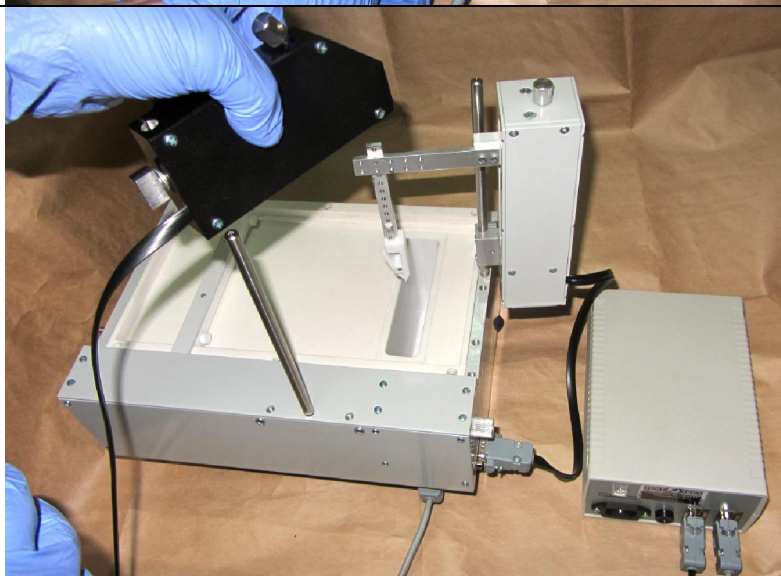
11. Connect another end of motor cable to the socket on rear wall of control electronic unit (rightmost socket).



12. Connect cable from the surface tension sensor to the socket on rear wall of control electronic unit (left socket, second from right).



13. Mount the surface pressure sensor unit on rear vertical stand.

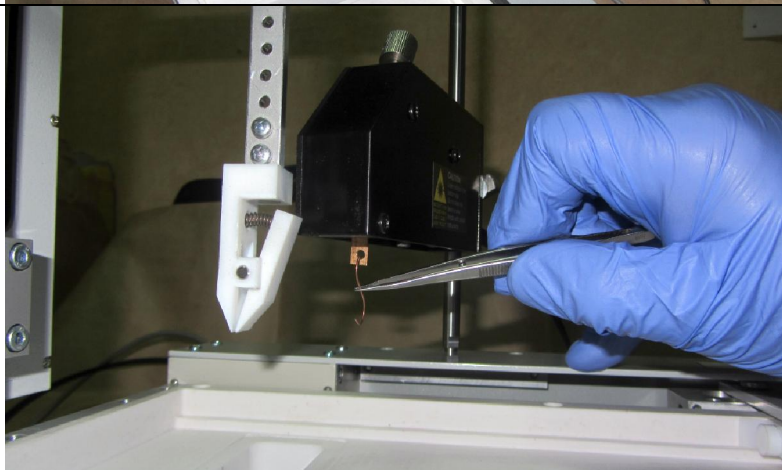




14. Adjust vertical position of the surface pressure sensor unit and fix it with a clamping screw on the mounting rod.



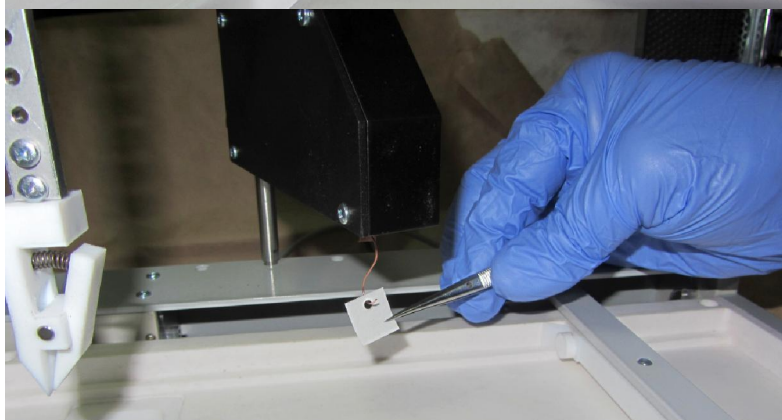
15. To prepare the sensor unit for operation, hang S-shaped hook on the measuring cantilever end...



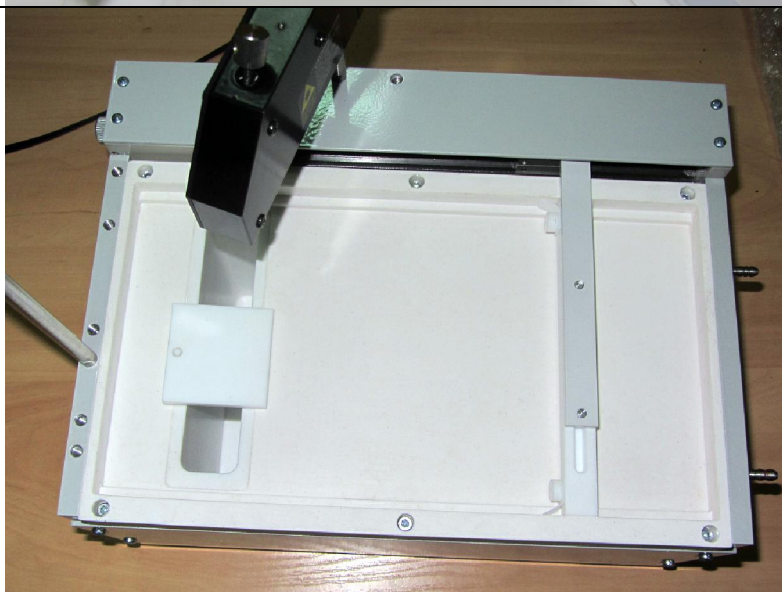
...and then hang clean paper Wilhelmy plate on the hook.

Or you can initially hang the plate on the hook and then attach the hook with plate to the measuring cantilever.

Use tweezers for these operations if necessary.



16. If you plan to deposit films by horizontal precipitation method (Langmuir—Schaefer), place the inclined PTFE plate above the dipping well or in shallow area of the trough. The inclination angle may be adjusted by the screw at one end of the plate.



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17. Place the assembled device onto its working location. Connect the control unit to host PC with the USB cable. Connect the power cord to the control unit and plug it into the electrical socket (110—240 V).

Install the LB trough control program onto the PC from the CD placed before rear cover of the manual. You may also follow recommendations for software installation (Internet connection is necessary) in following section.

The device is ready for further operation.



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Note, careful washing of the PTFE trough and the barrier is regular operation and should be thoroughly done before the first filling of the trough with liquid.

Every time, before filling the trough with water (or other liquid), check if the clutch on draining hose is closed.



## Recommendations for control software installation for LT-111

1. Necessary components of software used to control LT-11 LB trough you may download at:

[http://microtm.com/download/ CDM\\_v2.12.24\\_WHQL\\_Certified.zip](http://microtm.com/download/CDM_v2.12.24_WHQL_Certified.zip)

<http://microtm.com/download/LT-111-0020.ZIP>

<http://microtm.com/download/System32-LT.rar>

<http://microtm.com/download/manual-LT111en-2016.pdf>

2. When you finish with connecting all the cables and cords of LT-111 including connection of host PC and control electronic unit via USB, you will need to install drivers for COM-port emulation. They are

[http://microtm.com/download/CDM\\_v2.12.24\\_WHQL\\_Certified.zip](http://microtm.com/download/CDM_v2.12.24_WHQL_Certified.zip)

3. Before first switching the LT-11 controller on, unpack the content into some folder on the host PC hard drive (it may be temporary folder). Then at first switching the controller on, Windows will prompt about the necessary drivers absence. Point out the path to the folder with the drivers in the installation Wizard (twice) and the system will do the rest by itself. The drivers can be found also at <http://www.ftdichip.com/FTDrivers.htm>. The USB CDM drivers are developed and supported by corresponding manufacturer (FTDI Chip).

4. Unpack content of <http://microtm.com/download/LT-111-0020.ZIP> to folder on your hard drive. It will be working folder with the control software. This copy of control software contains necessary settings, calibrations and configurations for LT-111 with serial number #0020. To start the control program, run file lbt.exe in the folder.

5. Usually, Windows require some specific resource files to be present in its Windows/System32 folder. Please, unpack content of <http://microtm.com/download/System32-LT.rar> archive and copy the files to Windows/System32 folder.

6. Operation manual is in file <http://microtm.com/download/manual-LT111en-2016.pdf>.