MultiWash+ Microplate Washer Quick Start Guide

The MultiWash+ Microplate Washer is a fully automated and programmable microplate washer for standard ANSI SBS footprint 96-well and 384-well microplates with flat-bottom or round-bottom wells.

- The standard 8-channel manifold works with 96-well microplates in portrait orientation.
- The optional 12-channel manifold works with 96-well microplates in landscape orientation.
- The optional 16-channel manifold works with 384-well microplates in portrait orientation.

Up to three separate wash liquids plus a rinse liquid can be selected for the dispense cycles through the on-board software. Aspirated liquid is routed to a separate waste bottle.

The MultiWash+ Microplate Washer User Guide

Before setting up and operating the instrument, Molecular Devices recommends that you download and read the *MultiWash+ Microplate Washer User Guide*.

To download the latest version of the user guide, visit:
www.MolecularDevices.com/MultiWash-Manual

Unpacking and Setting Up the Instrument

Before unpacking and setting up the MultiWash+ Microplate Washer, prepare a dry, flat, vibration-free work area that has sufficient space for the instrument, the fluidics bottles and tubing, and the power cable.

The instrument is 21.00 cm (8.27 in.) wide, 21.00 cm (8.27 in.) high, and 46.00 cm (18.11 in.) deep. To provide access for disconnecting power from the instrument, maintain a 20 cm to 30 cm (7.9 in. to 11.8 in.) gap between the rear of the instrument and the wall.

Keep the instrument away from direct sunlight.

Unpacking and setting up the instrument includes the following procedures:

- Unpacking the instrument and saving the original packaging. See Unpacking the Washer on page 3.
- Installing the manifold and connecting the fluidics tubing. See Installing the Manifold on page 6.
- Connecting the fluidics tubing to the waste, rinse, and wash bottles. See Connecting the Fluid Bottles on page 8.
- Installing the microplate carrier on the instrument deck. See Installing the Microplate Carrier on page 9.
- Connecting the power cord and powering on the instrument. See Connecting Power to the Instrument on page 10.

Contents of the Package

The package contains the instrument and the accessories that are required for installing the instrument as follows:

- MultiWash+ Microplate Washer Quick-Start Guide
- MultiWash+ Microplate Washer
- Power cord
- 2.5 L waste bottle
- 2.0 L rinse bottle
- 2.0 L wash bottles (3)
- Microplate carrier
- 8-channel manifold
- Fluidics tubing
- Cleaning tools for manifold needles
- Spare fuses (2)

Figure Q-1: Instrument and Accessories

Unpacking the Washer

The packaging is specifically designed to protect the MultiWash+ Microplate Washer during transportation.

Note: Keep the shipping box and all packaging materials for future transport needs. Do not use tools that can damage the packaging or the instrument.

1. Check the box for visible damage that occurred during transportation. In case of damage, immediately report it to your Molecular Devices representative and keep the damaged packaging.
2. With the box facing up as indicated on the packaging, use a box cutter to carefully cut open the top of the box.
3. Remove the power cable.
4. Remove the waste, wash, and rinse bottles.

Figure Q-2: Waste, Wash, and Rinse Bottles

5. Remove the accessories boxes.

Figure Q-3: Accessories Boxes

6. Remove the cardboard dividers from each end of the box

Figure Q-4: Cardboard Dividers

7. Carefully lift the instrument out of the box.

8. Remove the foam and cardboard packing materials from the instrument.

Figure Q-5: Instrument Packing Materials

9. Remove the plastic wrapper from the instrument.
10. Gently place the instrument on a dry, flat, vibration-free area of the workbench. The instrument is 21.00 cm (8.27 in.) wide, 21.00 cm (8.27 in.) high, and 46.00 cm (18.11 in.) deep. To provide access for disconnecting power from the instrument, maintain a 20 cm to 30 cm (7.9 in. to 11.8 in.) gap between the rear of the instrument and the wall. Keep the instrument away from direct sunlight.
11. Visually inspect the instrument for loose, bent, or broken parts. If damage is found, immediately report it to your Molecular Devices representative.
12. Compare the serial number on the rear of the instrument with the instrument serial number on the shipping document and the packing list.
13. Make sure that all the instrument accessories are present and match the shipping document and the packing list.
14. Remove the adhesive tape from the clear cover and then open the cover.
15. Remove all packing material, foam, and adhesive tape from the instrument deck.

Figure Q-6: Remove and keep all packing materials

16. Remove the metal microplate carrier lock that is attached to the instrument deck with adhesive tape and held in place by the magnet below the surface of the instrument.
17. Keep the shipping box and all packaging materials for future transport needs.

CAUTION! Before the instrument is installed and powered on, let the instrument stand for at least 2 hours to reduce the possibility of condensation that can damage the instrument or cause a malfunction.

Installing the Manifold

There are three manifolds available for the MultiWash+ Microplate Washer.

- The standard 8-channel manifold works with 96-well microplates in portrait orientation.
- The optional 12-channel manifold works with 96-well microplates in landscape orientation.
- The optional 16-channel manifold works with 384-well microplates in portrait orientation.

The instrument comes with the standard 8-channel manifold. The standard manifold and the fluidics tubing for connecting the manifold to the instrument are packed in separate accessories boxes.

To install the manifold:

1. Open the clear cover.
2. Connect the red quick-fit connector on the aspiration tubing to the red connector on the top of the instrument.

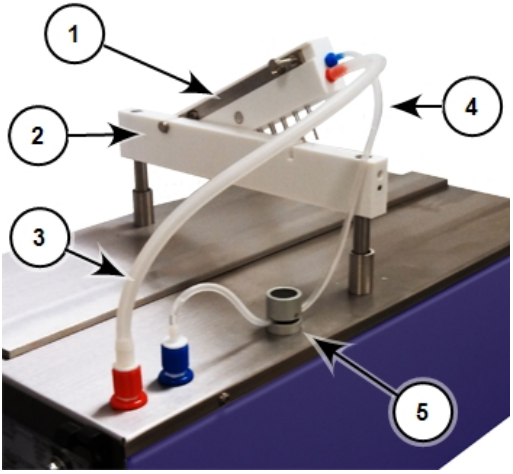

Figure Q-7: Manifold and Fluidics Tubing

Item	Description
1	Manifold
2	Manifold holder
3	Aspiration tubing (red)
4	Dispense tubing (blue)
5	Pinch valve

3. Slide the other end of the aspiration tubing onto the red connector on the manifold.

4. Connect the blue quick-fit connector on the dispense tubing to the blue connector on the top of the instrument.
5. Press down on the black top of the pinch valve and then slip the dispense tubing into the slot.

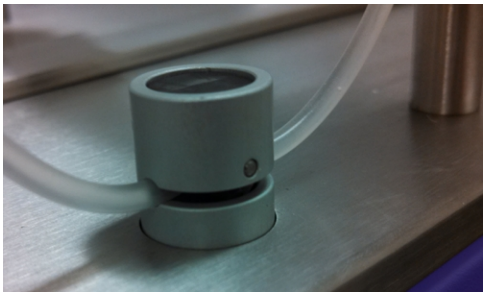

Figure Q-8: Dispense Tubing in Pinch Valve

6. Make sure that the tubing is fully inserted into the slot and then release the pinch valve.
7. Slide the other end of the dispense tubing onto the blue connector on the manifold.

Note: Make sure that there is enough slack in the dispense tubing on both sides of the pinch valve to allow for vertical movement of the manifold and to allow fluid to flow freely through the tubing.

8. Place the manifold on the horizontal manifold holder with the needles pointing down and the mounting pins pointing to the rear of the instrument.

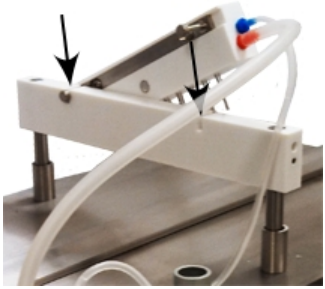

Figure Q-9: Placing the Manifold on the Manifold Holder

9. Set the mounting pins into the slots on the top of the manifold holder.
10. Close the clear cover.

After you start the instrument, make sure that the correct manifold is selected in the set up options. See the *MultiWash+ Microplate Washer User Guide*.

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Connecting the Fluid Bottles

The waste, rinse, and wash bottles connect to the color-coded fittings on the rear of the MultiWash+ Microplate Washer.

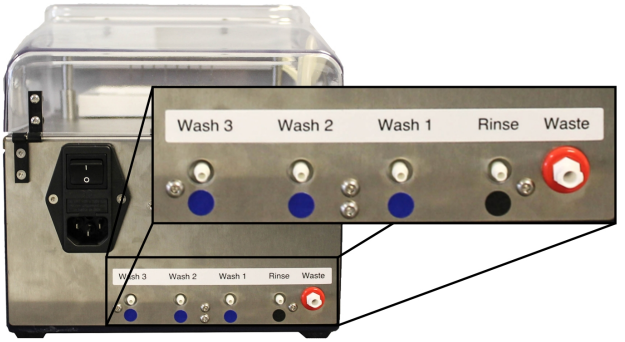

Figure Q-10: Fittings for Fluid Bottle Connections

- The 2.5 liter waste bottle connects to the fitting framed in red.
- The 2 liter rinse bottle connects to the fitting with the black label below it.
- The 2 liter wash bottles connect to the fittings with the blue labels below them. You can connect up to three wash bottles to the instrument.

The bottles and fittings are labeled for their intended use. For example, the 2 liter rinse bottle is labeled **Rinse**, and the corresponding fitting on the rear of the instrument is also labeled **Rinse**.

To install the fluid bottles:

1. Locate the waste tubing with the red marking.
2. Connect the waste tubing to the **Waste** fitting framed in red on the rear of the instrument.
3. Connect the other end of the waste tubing to the fitting on top of the 2.5 liter waste bottle.
4. Locate the rinse tubing with the black marking.
5. Connect the rinse tubing to the **Rinse** fitting with the black label below it on the rear of the instrument.
6. Connect the other end of the rinse tubing to the fitting on top of the 2 liter rinse bottle.
7. Locate a wash tubing with the blue marking.
8. Connect the wash tubing to the **Wash 1** fitting with a blue label below it on the rear of the instrument.
9. Connect the other end of the wash tubing to the fitting on top of a 2 liter wash bottle.
10. Connect up to two more wash bottles if needed.

Note: Before starting a procedure, make sure that the applicable wash and rinse bottles contain adequate liquid, and that the waste bottle is empty.

Installing the Microplate Carrier

The removable microplate carrier has a very strong magnet permanently mounted to its base. When the microplate carrier is removed from the instrument, keep the carrier away from magnet-sensitive items or devices.

Before installing the microplate carrier for the first time, remove all packing materials and adhesive tape from the microplate carrier, and make sure that the metal microplate carrier lock has been removed from the instrument deck.

To install the microplate carrier, carefully slide the microplate carrier onto the instrument so that the slot on the bottom of the carrier fits on the rail on the top of the instrument and the front of the carrier is near the front of the instrument deck. The magnet below the instrument deck holds the carrier in the home position.

Figure Q-11: Installed Microplate Carrier

Connecting Power to the Instrument

The power port and power switch are located on the rear of the instrument.

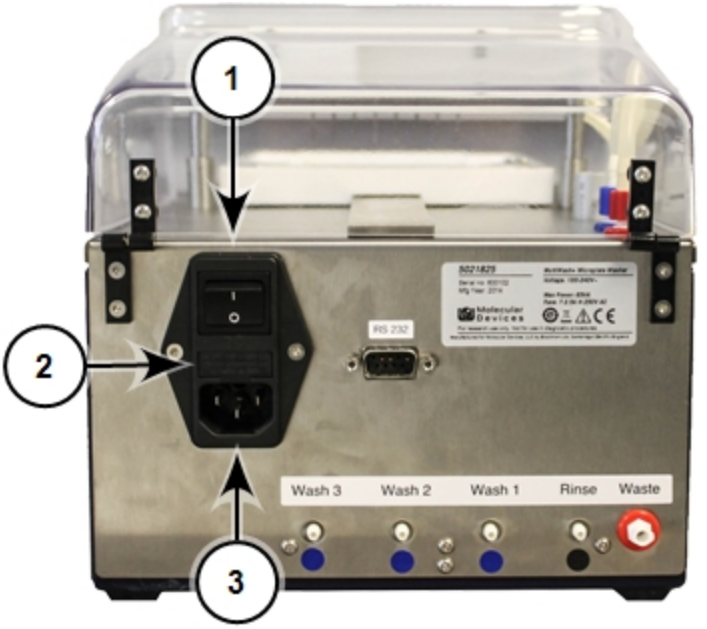

Figure Q-12: Power Switch, Fuses, and Power Port

Item	Description
1	Power switch
2	Fuse carrier
3	Power port

To connect power to the instrument:

1. Make sure that the power switch on the rear of the instrument is in the off position.
2. Plug the provided power cord into the power port.
3. Plug the other end of the power cord into a properly grounded electrical wall outlet.
4. Make sure that the instrument is in position for operation on the work bench.

> **CAUTION!** Before turning on the power to the instrument, make sure that the metal microplate carrier lock has been removed from the instrument deck and that the microplate carrier is installed.

5. Turn on the power to the instrument.

When the instrument is ready for use, the indicator light on the front of the instrument illuminates, and the LCD screen displays the **Run Procedure** menu.

Molecular Devices recommends turning the power off when the instrument is not in use.

Using the Instrument

You can control all instrument operations using the 5 keys and the 2-line LCD display on the front of the instrument. Using the on-board software, you can save up to 50 user-defined procedures. Each procedure can run 1 to 8 cycles selected from a list of up to 20 user-defined cycles.

You can save up to 20 user-defined microplate types to use with your procedures. The movement of the microplate and manifold can be optimized for the specific dimensions of each microplate type. You can set the dispense volume and speed, and the aspirate power and time. There are three shake speeds available. Other programmable features include crosswise aspiration and bottom detection for flat-bottom microplates.

This chapter includes the following sections:

Figure Q-13: The MultiWash+ Microplate Washer

Using the Instrument Control Panel

After you turn on the power to the instrument, the indicator light on the front of the instrument illuminates, and the LCD screen displays the **Run Procedure** menu.

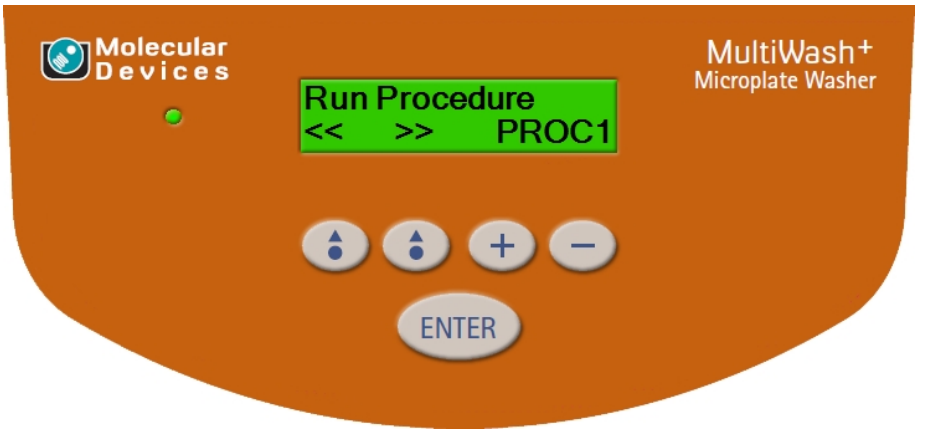

Figure Q-14: Instrument Control Panel

You can control all instrument operations using the 5 keys and the 2-line LCD display on the front of the instrument.

The first line of the display is the command, such as **Run Procedure**, **Prime/Rinse**, or **Plate Format**.

The second line of the display contains the functions for the command.

The four buttons below the display correspond with the functions in the second line of the display.

- The two ▲ buttons correspond to the functions displayed directly above them in the second line of the display. The functionality assigned to these buttons changes depending on the needs of the command in the first line of the display. For example, from a top-level menu, press these buttons to scroll through the other top-level menus.
- The + and − buttons let you scroll through the options displayed above them in the second line of the display. For example, for the **Run Procedure** command, press these buttons to scroll through the list of defined procedures.

To confirm the displayed selection, press ENTER.

The user guide describes the functionality of the control panel buttons for each available command.

Software Overview

The top-level menus can be accessed by pressing the  buttons on the control panel. See the *MultiWash+ Microplate Washer User Guide*.

Table Q-1: Top-Level Menus

Menu	Description
	From **Run Procedure**, select a previously defined wash or rinse procedure from the list.
	From **Prime/Rinse**, define and run a manual, automatic, or periodic prime or rinse cycle.
	From **Define Procedure**, define and save procedures using defined cycles and defined microplate types.
	From **Define Cycle**, define and save wash or rinse cycles to be used in procedure definitions.
	From **Define Plate**, define and save microplate types to be used in procedure definitions.
	From **Setup**, customize the instrument set up for your requirements.
	The **Service** menu is intended to be used by Molecular Devices trained personnel only.

Setting Up the Software

Before running procedures with the MultiWash+ Microplate Washer, select the instrument set up options, define the microplate types, define the wash or rinse cycles, and then define the procedures.

Do the software set up procedures in the following order:

1. Select instrument set up options.
   To define the instrument set up options, scroll the LCD display to **Setup**. From **Setup**, customize the instrument set up for your requirements.
2. Define a microplate type.
   To define a microplate type, scroll the LCD display to **Define Plate**. From **Define Plate**, define and save microplate types to be used in procedure definitions.
3. Define a wash or rinse cycle.
   To define a cycle, scroll the LCD display to **Define Cycle**. From **Define Cycle**, define and save wash or rinse cycles to be used in procedure definitions.
4. Define a procedure.
   To define a procedure, scroll the LCD display to **Define Procedure**. From **Define Procedure**, define and save procedures using defined cycles and defined microplate types.

See the *MultiWash+ Microplate Washer User Guide*.

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Loading a Microplate

A microplate can be loaded into the microplate carrier in either portrait or landscape orientation, depending on the installed manifold.

- The standard 8-channel manifold works with 96-well microplates in portrait orientation.
- The optional 12-channel manifold works with 96-well microplates in landscape orientation.
- The optional 16-channel manifold works with 384-well microplates in portrait orientation.

The instrument comes with the standard 8-channel manifold.

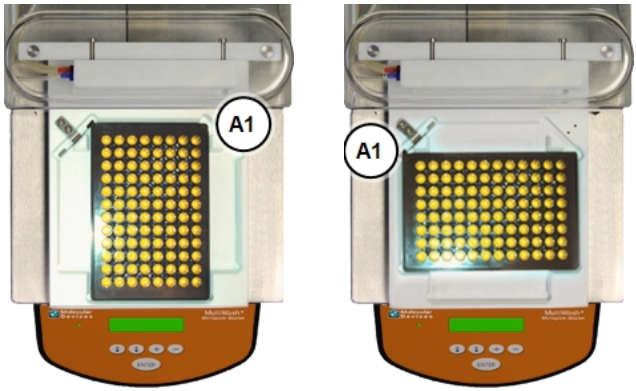

Figure Q-15: A 96-Well Microplate in Portrait and Landscape Orientation

- In portrait orientation, load the microplate with well A1 in the upper-right corner.
- In landscape orientation, load the microplate with well A1 in the upper-left corner.

Obtaining Support

Molecular Devices is a leading worldwide manufacturer and distributor of analytical instrumentation, software and reagents. We are committed to the quality of our products and to fully supporting our customers with the highest possible level of technical service.

Our support web site, www.moleculardevices.com/support.html , has a link to the Knowledge Base with technical notes, software upgrades, safety data sheets, and other resources. If you do not find the answers you are seeking, follow the links to the Technical Support Service Request Form to send an email message to a pool of technical support representatives.

You can contact your local representative or contact Molecular Devices Technical Support by telephone at 800-635-5577 (U.S. only) or +1 408-747-1700. In Europe call +44 (0) 118 944 8000.

Please have the system ID number, system serial number, software version number, and the system owner's name available when you call.

To download the latest version of the user guide, visit:
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Product manufactured by Molecular Devices, LLC.

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