

# macroman<sup>®</sup>

## User's Guide EN





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# INTRODUCTION

MACROMAN® — designed for pipetting and dispensing of liquid — is a portable, lightweight, and ergonomic unit for use with plastic or glass pipettes from 1 to 100 mL. Its balanced design and contoured buttons help prevent hand fatigue even after hours of use. In addition, the speed and battery displays make pipetting easy.

DESCRIPTION	PART NUMBER
MACROMAN	F110120

### CAUTION

Please make sure to read the safety and operating instructions before use. Also, when performing the pipetting function, observe all laboratory safety guidelines including the use of protective clothing, safety goggles, and gloves when handling biological samples or chemicals.

## Parts Checklist

After unpacking MACROMAN, verify that the following items were included and are undamaged:

- MACROMAN pipette controller, mounted with 0.45 µm hydrophobic PTFE filter
- User's Guide
- Universal power supply (with 4 adaptors)
- Charging desk stand
- Wall-mount assembly
- Extra filter, sterile, 0.22 µm, hydrophobic PTFE

## GLP Features

The serial number is engraved on the side, at the bottom of the handle of MACROMAN. It provides unique identification and traceability of your MACROMAN and the date of manufacture. Example: NH10013.

The bar code on the box provides traceability of your MACROMAN.

# Description



- 1 Pipette controller
- 2 Side stand
- 3 Filter
- 4 Pipette adaptor
- 5 Nosepiece
- 6 Aspirate trigger
- 7 Dispense trigger
- 8 LCD
- 9 Thumbwheel

**Figure 1**

MACROMAN® side and upper views



- 10 Wall mount
- 11 Desk stand
- 12 Power supply

**Figure 2**

MACROMAN® accessories



## Component Description

COMPONENT	MATERIAL / PROPERTIES
Housing	UV-resistant resin
Nosepiece	UV-resistant resin
Thumbwheel	UV-resistant resin
Side stand	UV-resistant resin
Pipette Adaptor	Silicone
Filter	PTFE, standard or sterile, hydrophobic membrane filter, 0.22 µm or 0.45 µm
Wall mount and Desk Stand	ABS (Acrylonitrile butadiene styrene)

## Technical Information

### Technical Data

Flow rate	<3 seconds with 0.45 µm filter for 25 mL <6 seconds with 0.45 µm filter for 50 mL
Dimensions	3.81 x 14.98 x 14.98 cm (1.5"W x 5.9"D x 5.9"H)
Weight	MACROMAN: 205g
Power supply	Input voltage: 100–240 VAC, 50/60 Hz, 0.3A Output voltage: 5 VDC, 500 mA Center positive DC connector
Unit: Input voltage	5 VDC, 500 mA Center positive DC connector
Battery	Lithium rechargeable battery 3.7 V/ 2800 mAh
Battery charging time	≈ 7 hours
Battery discharge time	> 10 hours

### Equipment Disposal

This equipment must not be disposed of with unsorted municipal waste. It is your responsibility to correctly dispose of your waste equipment by handing it over to an authorized facility for separate collection and recycling (do not dispose of the device in a fire; do not modify the Lithium-Ion battery in any way; discharge the battery before disposal; dispose of the MACROMAN and the battery separately in accordance with the laws and regulations in your area governing disposal of devices containing Lithium-Ion batteries). It is also your responsibility to decontaminate the equipment in case of biological, chemical, and/or radiological contamination so as to protect the persons involved from health hazards in the disposal and recycling of equipment.



For more information about where you can drop off your waste equipment for recycling, please contact your local dealer from whom you originally purchased the product or your local council. By doing so, you will help conserve natural resources and you will ensure that your waste equipment is recycled in a manner that protects human health and the environment. Thank you.

# Chapter 2

## OPERATION



### Operating Conditions

SPECIFICATION	CONDITION
Operating temperature	+10°C to +40°C
Relative humidity	10% to 90% (no condensation)
Power supply	Fluctuations not to exceed 10%

### Charging MACROMAN

1. Before using MACROMAN for the first time, insert the proper adaptor attachment into the power supply (Figure 3). Turn the plug clockwise to lock.
2. Release by pushing down on the button and turning it counter-clockwise to release the plug.
3. Plug the power supply into a standard electrical source.
4. Gently insert the power jack into the power supply charging socket located in the base of MACROMAN (Figure 4).



**Figure 3**  
Insert the adaptor you need into the power supply

**NOTE** Using excessive force may damage MACROMAN.

5. When MACROMAN is properly connected, the battery icon will indicate the charging status.
6. The battery display shows between 1 to 6 bars in sequence from empty to full. Allow the battery to charge for more than 6 hours before using MACROMAN for the first time. Once MACROMAN is completely charged, the battery icon shows as full (solid bars). You can also use MACROMAN during the charging process.



**Figure 4**  
Plugging the power supply into MACROMAN®



**Figure 5**  
Battery icon

**NOTE** The battery icon will flash when battery is at less than 10% charged. The battery is charged at:

- 15% after 1 hour
- 30% after 2 hours
- 61% after 4 hours
- 100% after more than 7 hours

**WARNING** Ensure that you are using an original Gilson main power supply (100–240 VAC, 50/60 Hz) — part number F107203. The power supply must not be used for any other electrical equipment except MACROMAN.

## Charging MACROMAN with the Desk Stand

To charge the MACROMAN, plug the desk stand into an electrical outlet and then place MACROMAN into the stand.

Observe the following:

- When MACROMAN is properly seated, the battery icon will indicate the charging status.
- The battery display shows between 1 to 6 bars in sequence from empty to full. Allow the battery to charge fully during 6 hours before using your MACROMAN for the first time.
- When MACROMAN is completely charged, the battery icon shows as full (solid bars). (Figure 5)

## Using MACROMAN

### Inserting the Pipette

MACROMAN accommodates pipette capacities from 1 mL to 100 mL.

**Pipettes > 2 mL:** MACROMAN comes assembled with the adaptor set to accept larger pipettes.

**Pipettes ≤ 2 mL:**

1. Loosen then remove the nosepiece.
2. Remove the pipette adaptor and then flip it so the small hole faces down towards the pipette.

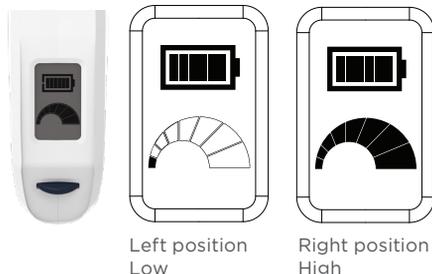
**NOTE**

When you flip the pipette adaptor, it is normal for it to be loose. Airtightness is maintained.

3. Reattach the nosepiece.
4. Once the adaptor is set for your desired pipette size, carefully insert the pipette into the nosepiece, providing a secure fit.

### Setting the Flow Rate

- Adjust the maximum speed by turning the thumbwheel until desired speed on display is reached.
- When pressing either trigger, the speedometer reflects the speed up to the set thumbwheel position.



**Figure 9**

Adjust speed with the thumbwheel to set the flow rate



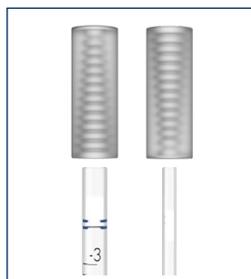
**Figure 6**

Bottom view of the desk stand



**Figure 7**

MACROMAN® on its desk stand

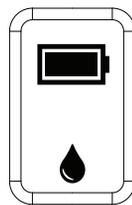


**Figure 8**

Rotate the pipette adaptor to accommodate different types of pipettes

## NOTICE

Do not use the maximum speed with low volume pipettes ( $\leq 2$  mL). At high speed, the liquid will damage your pipette controller.



**Figure 10**  
Flow rate for drip mode

## For Drip Mode

Set thumbwheel all the way to the left: speedometer disappears and drip icon flashes three times.

The pressure sensitive dispense trigger allows you to control the flow speed.

## Filling and Dispensing

### Aspirating liquid

1. Immerse the pipette into the liquid.
2. Press the Aspirate (upper) trigger until the pipette is filled just above the desired mark.
3. Press the Dispense (low) trigger slowly until the meniscus is exactly level with the desired mark.

### Dispensing liquid

During blow-out, liquid is dispensed with the aid of the pump.

1. Place the pipette against the wall of the vessel.
2. Press the Dispense (low) trigger completely.

### For drip mode

- Aspirate is on low motor speed.
- Press the Dispense (low) trigger to release the liquid drop by drop. Liquid dispensing takes place only using atmospheric pressure.

## Using the Side Stand

- Use the side stand to safely place the MACROMAN and its pipette on a lab bench.
- Turn the stand to the left or to the right to avoid the pipette touching the lab bench.



**Figure 11**  
MACROMAN® laying on its side stand

## Sleep Mode

MACROMAN goes into sleep mode after five minutes. Press any button to reactivate the device.

# MAINTENANCE & CLEANING

## Safety and User Precautions

- Before cleaning, disconnect MACROMAN from the power supply. Never clean the power supply with water or immerse the unit in water (refer to [Cleaning](#) on page 11).
- Never use with highly flammable or corrosive liquids.
- Ensure the power of your electrical source matches the voltage of the power supply. Only use the adaptor supplied.
- When changing the filter, wear protective gloves to prevent accidental contamination.
- Do not open the MACROMAN housing as it will void the warranty.
- Never operate MACROMAN without a filter.

## Replacing the Battery

1. Disconnect the power supply from the unit.
2. Press down on top of the battery cover **C** and slide down to remove from unit.
3. Gently pull the battery pack **B** out of the pipette controller until you can access the cable connection mounted on the PCB board.
4. Carefully remove the battery connector **A** from the PCB board.
5. Take the replacement battery and line up front of connector **A**. Carefully reconnect the cable connection to the PCB board.



**Figure 12**  
MACROMAN® battery

### NOTICE

Do not force the connector. It only fits one way. There should be a slight “click” when the cable connection is inserted properly.

6. Insert the new battery pack into MACROMAN with wires and position between battery pack and housing wall.
7. Reattach the battery cover.
8. Charge the battery for 7 hours before use.

### NOTICE

It is imperative to dispose of a used battery promptly and in accordance with local disposal regulations.

### CAUTION

Do not disassemble the battery or dispose of it in fire.

## Replacing the Filter

### CAUTION

When changing the filter, wear protective gloves to prevent accidental contamination.

1. Gently push the nosepiece up and turn counter clockwise until it is separated from the pipette controller.
2. Remove the filter from the silicone pipette holder.
3. Dispose of the filter and replace with a new one.

The filter should be replaced every three months, when contaminated by liquid, or when the suction capacity is slowed.

### NOTE

For a proper seal, use only MACROMAN replacement filters.

### NOTICE

For a proper operation, never operate MACROMAN pipette controller without a filter.



**Figure 13**  
MACROMAN®  
filter

## Cleaning

### CAUTION

Always disconnect MACROMAN from the power supply before cleaning.

- MACROMAN can be cleaned with most common laboratory disinfectants including isopropanol.
- Never use aggressive organic solvents.
- The nosepiece and the pipette adaptor can be autoclaved at 121°C, 20 minutes, 1 bar relative pressure. The filter must be removed before autoclaving the nosepiece (refer to [Replacing the Filter](#), above). No other part of MACROMAN is autoclavable.



# TROUBLESHOOTING

The following table may help you to identify and correct the problem you might encounter.

## Troubleshooting Table

SYMPTOM	POSSIBLE CAUSE	ACTION
The serological pipette falls out (the holding force of the pipette is too small), or tilts to the side too much.	The pipette adaptor is dirty or wet.	Take out the pipette adaptor, clean and dry.
	The pipette adaptor is damaged.	Replace it with a new one.
The pump is working, but MACROMAN does not draw liquid or draws liquid very slowly.	The filter is dirty.	Take out the pipette adaptor, take out the filter, if it is dirty, replace it with a new one.
	The pipette adaptor is damaged.	Replace pipette adaptor with a new one.
	The filter is blocked.	Replace filter.
	The battery is low.	Recharge the battery.
Liquid leaks from the pipette (the aspiration and the dispense buttons are not pressed).	The serological pipette is damaged or worn.	Check the serological pipette for damage – cracks, dents – if present, replace the pipette with a new one.
	The serological pipette is inserted incorrectly.	Check whether the serological pipette has been correctly inserted in the pipette adaptor.
	The pipette adaptor or the filter is installed incorrectly.	Check whether all parts are present and correctly installed.
	The pipette adaptor is damaged.	Replace pipette adaptor with a new one.
MACROMAN does not charge.	MACROMAN is placed incorrectly on the stand.	Check the fit of the alignment of the MACROMAN on the pins in the stand.
	The power supply is connected incorrectly in the desk stand.	Remove then reinstall the power supply in the desk stand.
	The power supply is fit incorrectly in MACROMAN.	Remove then reinstall the power supply in MACROMAN.

**NOTE**

There are no user-serviceable parts inside of the unit.

# Return for Repair

If any problem persists, please return MACROMAN back to your local Gilson representative.

## **CAUTION**

Before returning any instrument to your local Gilson representative, ensure that it is completely free of chemical, biological, or radioactive contamination (Refer to [Cleaning](#), page 11). Returned instruments can only be checked and repaired if they have been carefully cleaned and decontaminated by the customer.

Forced opening of the instrument invalidates any warranty claim. Enclose with the returned instrument a description of the issue that has occurred and specify which reagents were used.

## Chapter 5

# ACCESSORIES & SPARE PARTS



## Accessories

DESCRIPTION	PART NUMBER
Charging desk stand	F107200
Wall-mount	F107201
Magnetic wall-mount	F107202
Filter, 0.22 µm, standard (set of 10)	F107204
Filters, 0.22 µm, sterile (set of 10)	F107205
Filter, 0.45 µm, standard (set of 10)	F107206
Filters, 0.45 µm, sterile (set of 10)	F107207

## Spare Parts

DESCRIPTION	PART NUMBER
Power supply	F107203
Lithium-ion battery	F107208
Nosepiece	F107209
Adjustable Side Stand	F107210
Pipette adaptor	F107211

# EC DECLARATION OF CONFORMITY

Gilson certifies on its sole responsibility that MACROMAN complies with the requirements of the following European Directives:

2014/35/EU	Low voltage equipment
2014/30/EU	Electromagnetic compatibility
2011/65/EU	Restriction of hazardous substances
2012/19/EU	Waste electrical and electronic equipment
2006/66/EC	Battery directive



# CERTIFICATION

Gilson certifies on its sole responsibility that the MACROMAN was tested and certified by and independent third-party organization TÜV SÜD America Inc. for its conformity with the essential technical safety requirements of Canada and US authorities. The products fulfill national and international standards, this certification process includes factory inspection.



# WARRANTY

Gilson MACROMAN is warranted to be free of defects in materials and workmanship for a period of 12 months from the date of purchase, providing:

- The unit has not been opened or attempted to be opened.
- The user ensures that it has been carefully cleaned and decontaminated.
- The unit has been operated according to the instructions and not in any improper way.
- Should warranty service be required, repair or replacement will be provided by your local Gilson service center. Freight shipping the unit to Gilson will be the responsibility of the purchaser. There are no other warranties or guarantees, implied or otherwise expressed including any warranties of application or merchantability.







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