pipetmaX®

PIPETMAX® 268

User's Guide

GILSON®

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Safety

Read this section before installing and operating the PIPETMAX® 268.

This instrument is intended to be used in a laboratory environment by trained technical personnel.

For safe and proper use of this instrument, it is required that both operating and service personnel follow the instructions contained in this guide when installing, cleaning, and maintaining the instrument.

The following safety precautions must be observed during all phases of operation, service, and repair of the instrument. Failure to comply with these precautions or with specific warnings elsewhere in this user's guide violates safety standards of design, manufacture, and intended use of the instrument. Gilson assumes no liability for the customer's failure to comply with these requirements.

The PIPETMAX 268 has been certified to safety standards required in Canada, Europe, and the United States. Refer to the instrument rear panel label and the Declaration of Conformity document for the current standards to which the instrument has been found compliant.

Safety

The following electronic and hazard symbols may appear on the instrument:

Symbol	Explanation		
---	Direct current	Courant continu	Gleichstrom
|	Electrical power ON	Sous tension	Netzschalter ein
O	Electrical power OFF	Hors tension	Netzschalter aus
⚠	Caution	Attention	Vorsicht
⚠	Mechanical hazard	Danger méchanique	Mechanische Gefährdung

The following safety notices may appear in this document:

⚠WARNING	WARNING indicates a potentially hazardous situation which, if not avoided, may result in serious injury
⚠CAUTION	CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury
NOTICE	NOTICE indicates a potentially hazardous situation which, if not avoided, may result in equipment damage

Voltage

Access to the rear panel is necessary because the instrument must be detached from all voltage sources before service, repair, or exchange of parts.

Operate the instrument using the approved power supply provided and only at the voltage specified on the rear panel label of the instrument.

Safety Interlocks

The instrument is configured with one of two safety interlocks. One interlock is used when the rotating cover is installed on the instrument, and the other interlock is an external sensor and is used when the instrument is located in a hood.

The safety interlocks prevent the instrument from operating when the rotating cover or hood door is open.

When the instrument is installed in the hood, the external sensor must face the door of the hood and be located within 15 cm (6 in) of the door.
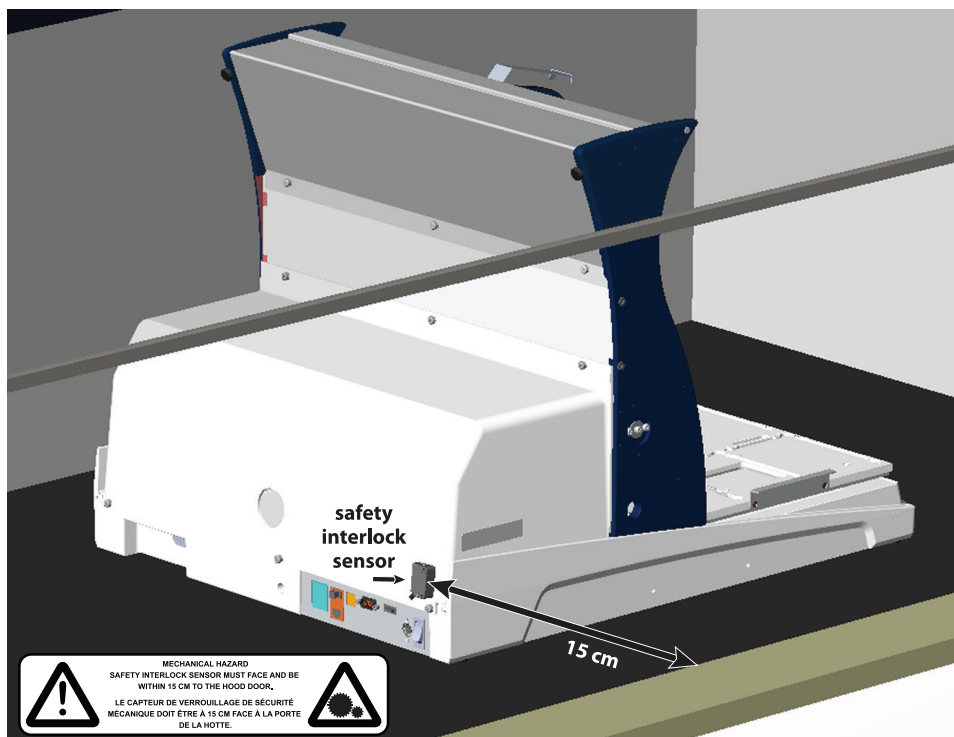
PIPETMAX 268 Configured with External Safety Interlock Sensor and Placed in Hood

Pipette Heads

The instrument is capable of generating significant forces that could cause potential injury to the user. For an instrument with the rotating cover installed, the safety interlock in the cover will disable the instrument movement if the cover on the instrument is open. For an instrument installed in a hood, the external safety interlock sensor mounted on the instrument will disable the instrument movement if the hood door is open.

Tip Waste Container

The tip waste container may contain residues of flammable or infectious liquids in ejected tips.

If you use flammable liquids (e.g., ethanol 98%), treat the waste before disposing of it in accordance with your laboratory guidelines.

Dispose of infectious material, waste, or tips in accordance with national and local safety regulations.

Tray

The moving tray is capable of causing injury by pinching. For an instrument with the rotating cover installed, the safety interlock in the cover will disable the instrument movement if the cover on the instrument is open. For an instrument installed in a hood, the external safety interlock sensor mounted on the instrument will disable the instrument movement if the hood door is open.

Liquids

Observe safe laboratory practices when handling liquids. If working with biological samples or chemical substances, ensure that there is proper ventilation, and wear personal protective equipment (PPE), such as safety glasses, gloves, and protective clothing at all times.

Refer to the Material Safety Data Sheets for solvents before use.

Replacement Parts

Be sure to use only replacement parts specified in this user's guide. Do not repair or change parts which are not listed in this user's guide. If it is necessary to change parts not listed, please contact your local Gilson representative.

Sécurité

Merci de lire ces instructions avant toute installation ou utilisation du PIPETMAX® 268.

Cet instrument est destiné à être utilisé dans un environnement de laboratoire, par un personnel technique qualifié.

Pour une utilisation correcte et en toute sécurité, il est nécessaire que le personnel qui utilise et réalise la maintenance de l'instrument, suive les instructions contenues dans ce guide lors de l'installation, le nettoyage et la maintenance de l'instrument.

Les consignes de sécurité suivantes doivent être respectées durant toutes les phases de fonctionnement, d'entretien ou de réparation de l'instrument. Le non-respect de ces précautions ou des avertissements spécifiques mentionnés dans ce guide compromet les normes de sécurité de conception, de fabrication et d'utilisation prévue de l'instrument. Gilson décline toute responsabilité en cas d''incapacité du client à se conformer à ces exigences.

Le PIPETMAX 268 a été certifié conformément aux normes de sécurité en vigueur au Canada, en Europe et aux Etats-Unis. Merci de vous reporter aux indications mentionnées sur le panneau arrière de l'instrument ainsi qu'au document de Déclaration de Conformité aux normes pour lesquelles l'instrument a été déclaré conforme.

Sécurité

Les symboles suivants sont susceptibles d'apparaître sur l'instrument:

Symbole	Signification		
---	Direct current	Courant continu	Gleichstrom
|	Electrical power ON	Sous tension	Netzschalter ein
O	Electrical power OFF	Hors tension	Netzschalter aus
⚠	Caution	Attention	Vorsicht
⚠	Mechanical hazard	Danger mécanique	Mechanische Gefährdung

Les consignes de sécurité suivantes peuvent apparaître dans ce document:

⚠WARNING	AVERTISSEMENT signale une situation potentiellement dangereuse qui, si elle n'est pas évitée, peut entraîner des blessures graves
⚠CAUTION	ATTENTION signale une situation potentiellement dangereuse qui, si elle n'est pas évitée, peut entraîner des blessures mineures ou légères
NOTICE	AVIS signale une situation potentiellement dangereuse qui, si elle n'est pas évitée, peut entraîner des dommages matériels

Tension

L'accès au panneau arrière doit être libre car l'instrument doit pouvoir être déconnecté de sa source d'alimentation avant toute opération d'entretien, de réparation ou de remplacement de pièces.

Ne faîtes fonctionner l'appareil qu'en utilisant le bloc d'alimentation fourni et uniquement à la tension indiquée sur l'étiquette située à l'arrière de l'instrument.

Dispositifs de sécurité

L'instrument présente deux dispositifs de sécurité. Le premier est activé lorsque le capot rotatif est installé sur l'appareil ; le second est un capteur externe, activé lorsque l'instrument est placé sous une hotte.

Les dispositifs de sécurité empêchent tout fonctionnement de l'instrument lorsque le capot ou la porte de la hotte sont ouverts.

Lorsque l'appareil est installé sous une hotte, le capteur externe doit faire face à la porte de la hotte et être positionné à 15 cm de cette porte.
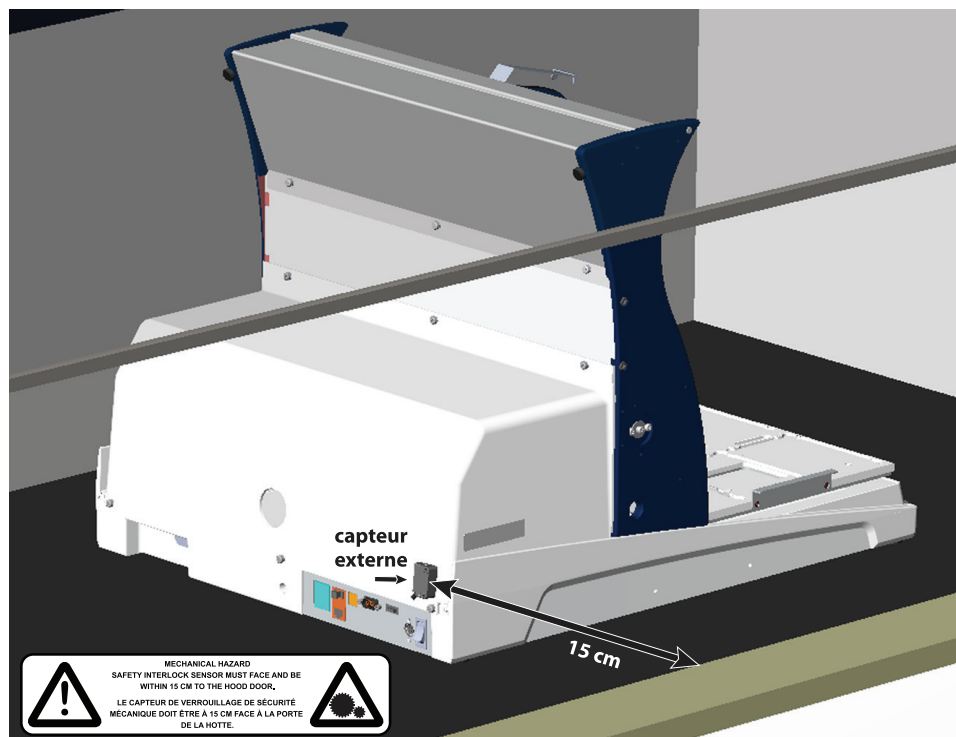
PIPETMAX 268 Configuration sous hotte où le dispositif de sécurité est un capteur externe

Têtes de pipetage

L'instrument est capable de générer des forces importantes, susceptibles d'entraîner des blessures à l'utilisateur. Lorsque l'appareil est équipé de son capot rotatif, le dispositif de sécurité désactive tout mouvement de l'appareil lors de l'ouverture du capot. Lorsque l'instrument est installé sous une hotte, le capteur externe permet de désactiver tout mouvement de l'instrument lors de l'ouverture de la porte de la hotte.

Conteneur pour pointes usagées

Les pointes usagées peuvent contenir des résidus liquides dangereux, inflammables ou infectieux.

Si vous utilisez des liquides inflammables (ex. éthanol 98%), veillez au traitement approprié des déchets avant leur élimination, en vous conformant aux directives de votre laboratoire.

Eliminez le matériel infectieux, les déchets ou les pointes usagées en vous conformant aux réglementations de sécurité nationale et locale.

Plateau

Le plateau mobile est susceptible d'occasionner des blessures par pincement. Lorsque l'appareil est équipé de son capot rotatif, le dispositif de sécurité désactive tout mouvement de l'appareil lors de l'ouverture du capot. Lorsque l'instrument est installé sous une hotte, le capteur externe permet de désactiver tout mouvement de l'appareil lors de l'ouverture de la porte de la hotte.

Liquides

Respectez les pratiques de sécurité du laboratoire lors de la manipulation de liquides. Si vous travaillez avec des échantillons biologiques ou des substances chimiques, assurez-vous que la ventilation est adéquate et portez en permanence un équipement de protection individuelle (EPI), tel que : lunettes, gants et vêtements de protection.

Reportez-vous aux Fiches de Données de Sécurité pour les solvants avant toute utilisation.

Pièces Détachées

Assurez-vous de n'utiliser exclusivement que les pièces détachées préconisées dans ce guide. Ne tentez pas de réparer ou remplacer des pièces ne figurant pas dans ce guide.

Si le remplacement de pièces ne figurant pas dans ce guide s'avérait nécessaire, merci de contacter votre représentant Gilson local.

Introduction   1

The PIPETMAX® 268 is a small footprint personal pipetting station used to perform repetitive, precise, pipetting actions.

This chapter provides information on the following topics:

- Unpacking
- Technical Specifications
- Customer Service
- Repair and Return Policies
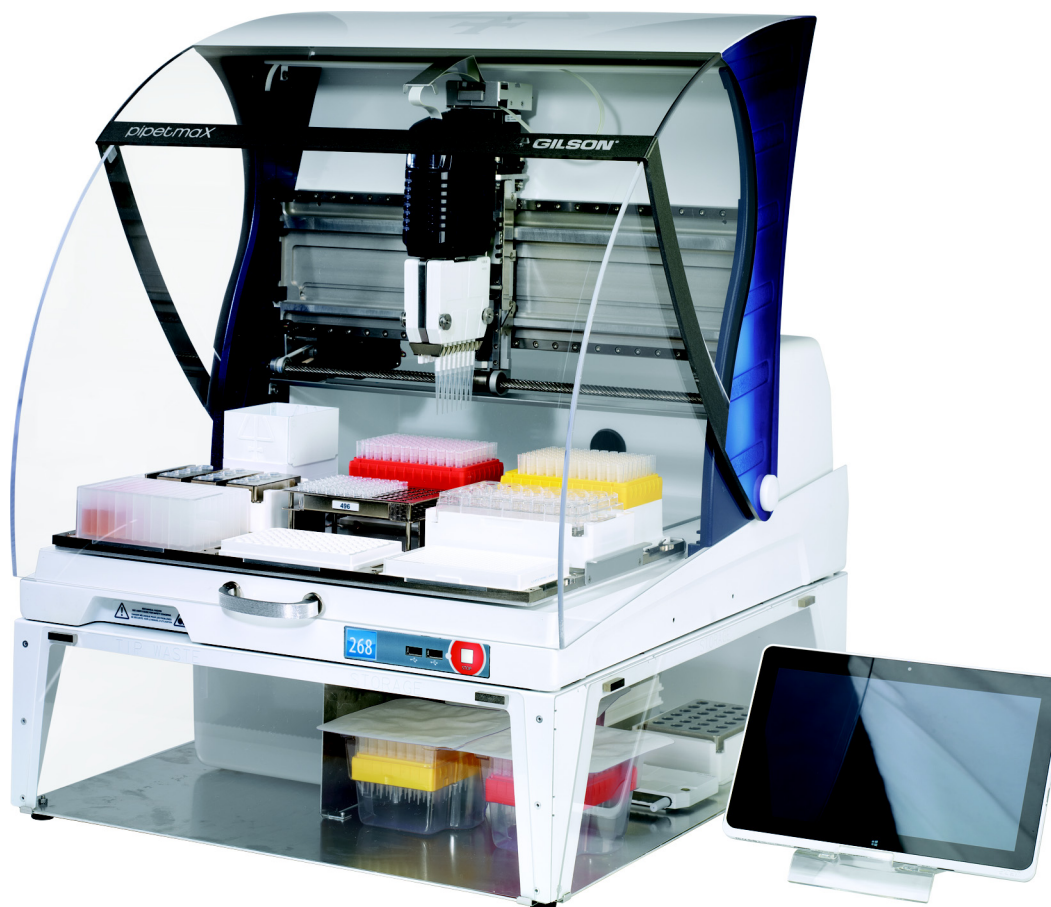
PIPETMAX® 268
with optional riser for off-bed tip disposal

Unpacking

PIPETMAX is delivered with most major components already assembled. Keep the original packaging in case PIPETMAX must be returned to the factory.

⚠CAUTION It is recommended that two people lift PIPETMAX out of the box, as it weighs approximately 24.9 kg (55 lbs.).

1   Remove the open-ended cardboard box.

2   Remove the box of accessories and open it.

3   Lift the printed, outer cardboard box up to remove.

4   Grip PIPETMAX at the recesses near the base. There is one recess in the front, one in the back, and one on each side. Use these recesses when lifting PIPETMAX out of the foam-lined, cardboard tray.

NOTICE Do not attempt to lift PIPETMAX from the cover or from the X-arm (the horizontal arm). Always lift the instrument from its base.

5   Place PIPETMAX on a lab bench or cart or in hood.

6   Remove the bag covering PIPETMAX. You may need to lift the front and the back slightly.

7   Remove the film protecting the rotating cover (if installed).

8   Remove shipping screws and bracket using the tool provided.

9   Store shipping screws and bracket in rear panel for future use if PIPETMAX needs to be shipped or transported.

NOTICE Do not store screws in rear panel without bracket as that will damage PIPETMAX during operation.

10 Remove the shipping brace from the rear panel by loosening the thumb screws securing the shipping brace to PIPETMAX. After removing the shipping brace, tighten the thumb screws.

11 Remove the foam block preventing the tray from moving and securing the alignment cable cord.
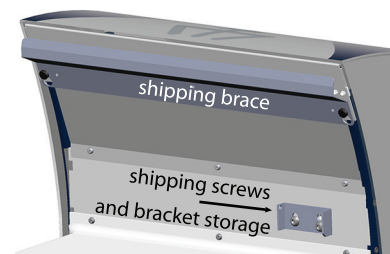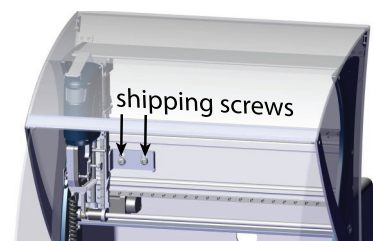
Standard Equipment

After PIPETMAX and its accessories are unpacked, you should have the following:

•   PIPETMAX® 268 with alignment head, dual eight-channel tip ejector foot, and rotating cover or external safety interlock sensor installed

•   USB Cable

•   Tip Reload Block

•   Tip Disposal Bin

•   USB Drive

•   Plug for Outlet on the Rear Panel

•   Power Supply

•   Power Cords

Documentation

The following documents are included with the PIPETMAX® 268:

- Installation Qualification/Operational Qualification (IQ/OQ) Procedures

- Declaration of Conformity

- Quality Control (QC) Checklist

- Items Included Checklist

- Setup Guide

- Gilson Quality Control Report Pipette Head (one for each pipette head)

Protocols

- Alignment Protocol

- Standard Liquid Handling Protocols with Documentation

Accessories

Required

Some accessories are required, but are ordered separately.

- Tablet with TRILUTION® micro pre-loaded or TRILUTION® micro on a USB drive for installation on a PC

- Pipette Head(s)

- Removable Tray

- Blister Packs of Tips

- Racks

For part numbers, refer to Appendix A, Replacement Parts.

Optional

The following optional accessories are also available:

- Tablet Stand

- Riser Kit for Off-bed Tip Disposal

- Orbital Shaker

- Microscan 2D Barcode Reader

For part numbers, refer to Appendix A, Replacement Parts.

Technical Specifications *(sidebar)*

Technical Specifications

Please be aware of the following before operating the PIPETMAX® 268.

NOTICE　Changes or modifications to this device not expressly approved by Gilson could void the warranty.

The instrument complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This instrument may not cause harmful interference, and (2) this instrument must accept any interference received, including interference that may cause undesired operation.

Shielded cables must be used with the instrument to ensure compliance with the FCC Class A limits.

PIPETMAX® 268

Technical Specification	Definition
Communication	USB
Connections	Three USB host ports and one USB device port Two inputs (contact closure, TTL), two relay outputs, and one switched +12V DC 1A output **NOTICE**　Switching voltages higher than 30V or greater than 1A of current may damage the instrument.
Control	Touchscreen tablet or PC control via USB and TRILUTION® micro software
Dimensions (W x D x H)	**PIPETMAX® 268 with rotating cover** 54.4 x 65.5 x 53.1 cm (21.4 x 25.8 x 20.9 in) **PIPETMAX® 268 with rotating cover installed on optional riser assembly for off-bed tip disposal** 54.4 x 65.5 x 69.6 cm (21.4 x 25.8 x 27.4 in) **PIPETMAX® 268 without cover** 50.8 x 64.3 x 49.5 cm (20 x 25.3 x 19.5 in) **PIPETMAX® 268 without cover installed on optional riser assembly for off-bed tip disposal** 52.3 X 65 X 65.8 cm (20.6 x 25.6 x 25.9 in)
Environmental Conditions	Indoor use Altitude: up to 2000 m Temperature range: 5°C–40°C Humidity: Maximum relative humidity 80% for temperatures up to 31°C, decreasing linearly to 50% relative humidity at 40°C
Front Panel	Two USB host ports and STOP button

Liquid Contact Materials	Description	Material
	Tips	100% Virgin Polypropylene
	Tip Disposal Bin	Pro-fax 6523 (Polypropylene with colorant)
	Tip Disposal Bin (Off-bed)	Polypropylene
	Tip Chute	Pro-fax 6523 (Polypropylene with colorant) Aluminum 5052 with Hentzen, URA-ZEN, White, Matte Finish, Fine Texture Paint

Pipette Heads and DIAMOND® Tips	Pipette Head	Flow Rate Range (mL/min)	DIAMOND® Tips	Volume Range (µL)	DIAMOND® Filter Tips	Volume Range (µL)
	MAX8x20	0.0225–3.75	D200	1–20	DF30	1–20
			DL10	1–20	DFL10	1–10
	MAX8x200	0.225–37.5	D200	20–200	DF200	20–200
	MAX1000	1.125–187.5	D1000	100–1000	DF1000	100–1000
	Sterilized option available for some tips.					

PIPETMAX® 268 Technical Specifications (Page 1 of 2)

PIPETMAX® 268 (Continued)

Technical Specification	Definition					
Positioning Performance	Machine Accuracy (without tips) in XYZ = +/-0.2 mm (0.008") System Accuracy (with current tips) in XYZ = +/-0.9 mm (0.035")					
Power Requirements	**External Power Supply** **Voltage Input** Frequency: 50 to 60 Hz Voltage: 100–240V AC **Voltage Output** Voltage: 24V DC Current Rating: 6.25A, 150W					
Removable Tray Capacity	9-position removable tray (microplate footprints, but not for 384-well microplates) 9-position removable tray for 384-well microplates					
Safety and Compliance	The PIPETMAX® 268 has been certified to safety standards specified for Canada, Europe, and the United States. Refer to the instrument rear panel label and the Declaration of Conformity document for the current standards to which the instrument has been found compliant.					

Volumetric Specification for Transfers

		Maximum Permissible Errors				
Pipette Head	**Volume of Distilled Water**	**Systematic Error (µL)**	**Random Error (µL)**	**Systematic Error (%)**	**Random Error (%)**	
MAX8x20	1 µL	±0.08	≤0.05	8	5	
	10 µL	±0.15	≤0.10	1.5	1	
	20 µL	±0.25	≤0.12	1.25	0.6	
MAX8x200	20 µL	±0.50	≤0.16	2.5	0.8	
	100 µL	±1.00	≤0.30	1	0.3	
	200 µL	±2.00	≤0.50	1	0.25	

Weight: 24.9 kg (55 lbs.)

XYZ Motion Parameters

X	**Min**	**Max**	**Default**
Power	1%	100%	50%
Speed	1 mm/sec	550 mm/sec	350 mm/sec
Acceleration	Speed Value	4000 mm/sec^2	2200 mm/sec^2
Y	**Min**	**Max**	**Default**
Power	1%	100%	50%
Speed	1 mm/sec	550 mm/sec	350 mm/sec
Acceleration	Speed Value	4000 mm/sec^2	900 mm/sec^2
Z	**Min**	**Max**	**Default**
Power	1%	100%	60%
Speed	1 mm/sec	140 mm/sec	120 mm/sec
Acceleration	Speed Value	4000 mm/sec^2	650 mm/sec^2

PIPETMAX® 268 Technical Specifications (Page 2 of 2)

Customer Service

Gilson, Inc. and its worldwide network of authorized representatives provide customers with the following types of assistance: sales, technical support, applications, and instrument repair.

If you need assistance, please contact your local Gilson representative. Specific contact information can be found at www.gilson.com. To help us serve you quickly and efficiently, please refer to Before Calling Us on page 1-7.

Repair and Return Policies

Before Calling Us

Your local Gilson representative will be able to serve you more efficiently if you have the following information:

- Serial number and model number of the instruments involved.
  - The serial number for the PIPETMAX® 268 is located on the inside panel of the right support.
  - The serial number for each pipette head is located on the document supplied with it.
- Installation procedure you used.
- List of concise symptoms.
- List of operating procedures and conditions you were using when the problem arose.
- List of all instruments in the configuration and the connections to those instruments.
- List of other electrical connections in the room.

Warranty Repair

Units covered under warranty will be repaired and returned to you at no charge. If you have any questions about applicability, contact your local Gilson representative.

Non-Warranty Repair

For out-of-warranty repairs, contact your local Gilson representative who will discuss service options with you and can assist in making arrangements to return the equipment, if necessary.

Return Procedure

Contact your local Gilson representative to obtain authorization before returning any Gilson equipment. To return a piece of equipment:

- Carefully pack the unit to prevent damage in transit. Check with your local Gilson representative regarding proper method of shipment. No responsibility is assumed by Gilson or your local Gilson representative for damage caused by improperly packaged instruments. Indicate the authorization on the carton and on the packing slip.
- Always insure for the replacement value of the unit.
- Include a description of symptoms, your name, address, phone number, and purchase order to cover repair costs, return and shipping charges, if your institution requires it.

Unit End-of-Life

When a unit reaches the end of its useful life, refer to www.gilson.com for directions and information on the end-of-life policy. This is in accordance with the European Union Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

Setup/Operation 2

The PIPETMAX® 268 and its components should be set up in the order described in this chapter. Gilson TRILUTION® micro provides software control of the PIPETMAX® 268 during setup and operation as described in this chapter. For more information about TRILUTION® micro, view the help information in the software, accessible from the **?** button.

This chapter includes the following information:

<div style="float:left">*Placement*</div>

Placement

Place PIPETMAX on a stable, level surface.

PIPETMAX is configured with one of two safety interlocks. One interlock is internal to the rotating cover installed on the instrument, and the other interlock is an external sensor used when the instrument is located in a hood.

The safety interlocks prevent the instrument from operating when the rotating cover or hood door is open.

On Lab Bench or Lab Cart

A PIPETMAX with cover can run on a lab bench or lab cart.

In Hood

If PIPETMAX was ordered without a rotating cover, it must run in a hood.

When the instrument is installed in the hood, the external sensor must face the door of the hood and be located within 15 cm (6 in) of the door.
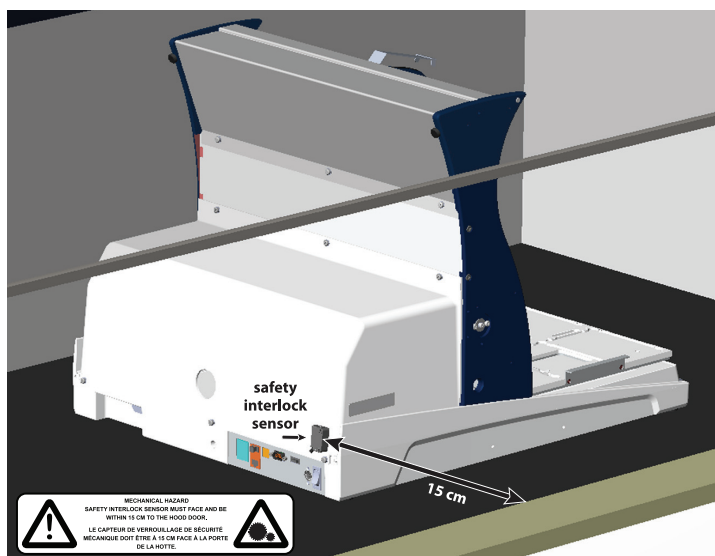
PIPETMAX Configured with External Safety Interlock Sensor and Placed in Hood

Removable Tray

A removable tray for placement of labware and tip racks is required.

Options

There are two removable tray options: 9-position removable tray (microplate footprints, but not for 384-well microplates) and 9-position removable tray for 384-well microplates.

9-Position Removable Tray

When placing labware and tip racks on the 9-position removable tray, refer to the following information:

- Tip racks can be placed in the back row middle and right positions, and the front row middle position ONLY. These positions have installed clips to hold the tip racks in place. It is recommended to use full tip packs because an error may be encountered if using two partial tip packs containing the same type of tip.

- The tip waste chute can be placed in the back row, left position ONLY. It is recommended to place the tip disposal bin in this position. It cannot be placed in positions with installed clips.

- All racks and plates can be placed in any position on the tray.

    Exceptions:

    - 384-well microplates cannot be placed on this tray.

    - A maximum of three thermal racks total (1, 2, or 3 PT racks, 1 or 2 CT racks, or a combination) can be placed on this tray.

        - Refer to the instructions provided with the racks to modify the tray to allow for rack placement.

    - Circulating Temperature (CT) racks can be placed in the front row, left or right positions ONLY.

        - Refer to the instructions provided with the rack to modify the tray to allow for rack placement.

    - The orbital shaker can only be placed in the front row, left or right positions ONLY.

9-Position Removable Tray for 384-Well Microplates

When placing labware and tip racks on the 9-position removable tray for 384-well microplates, refer to the following information:

- Tip racks can be placed in the back row middle and right positions, and the front row middle position ONLY. These positions have installed clips to hold the tip racks in place. It is recommended to use full tip packs because an error may be encountered if using two partial tip packs containing the same type of tip.

- The tip waste chute or tip disposal bin must be placed in the back row, left position ONLY.

- All racks and plates can be placed in any position on the tray.

  Exceptions:

  - A maximum of three thermal racks total (1, 2, or 3 PT racks, 1 or 2 CT racks, or a combination) can be placed on this tray.

    - Refer to the instructions provided with the racks to modify the tray to allow for rack placement.

  - Circulating Temperature (CT) racks can be placed in the front row, left or right positions ONLY.

    - Refer to the instructions provided with the rack to modify the tray to allow for rack placement.

  - The orbital shaker cannot be placed on this tray.

Installation

While holding the handles on the sides of the tray, lower the removable tray onto the fixed tray. It is keyed and will only mount one way. Grip the removable tray and then gently rock it back and forth. If it seems that the removable tray is shifting position on the fixed tray, use a 3 mm Allen wrench and gentle pressure to adjust the spacers on either side of the fixed tray (see figures). Spacers should just barely contact the removable tray. Remove and then replace the removable tray to ensure there is not any significant interference.
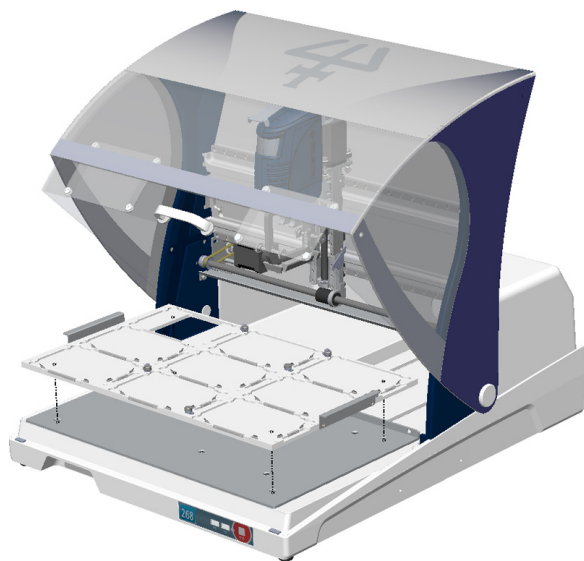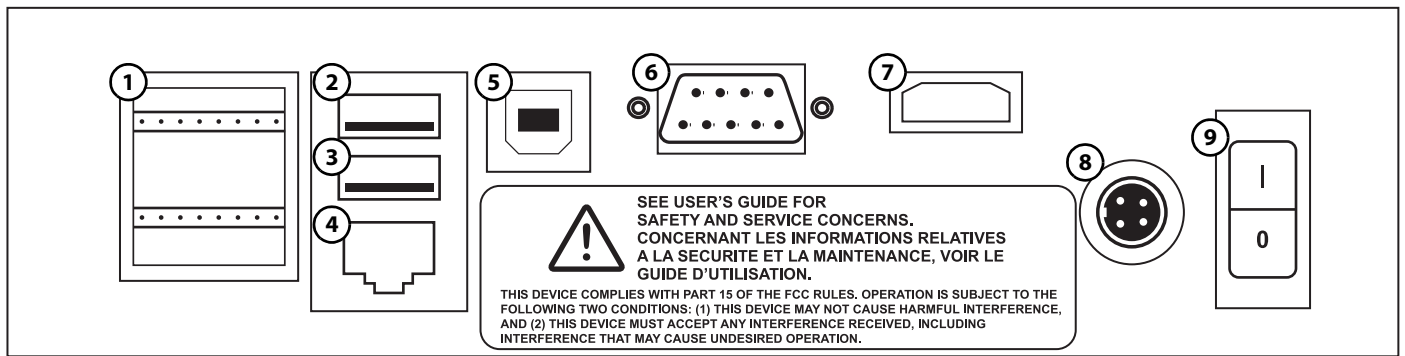
Connections

Refer to the diagrams when making the connections described in this section.

Rear Panel Diagrams
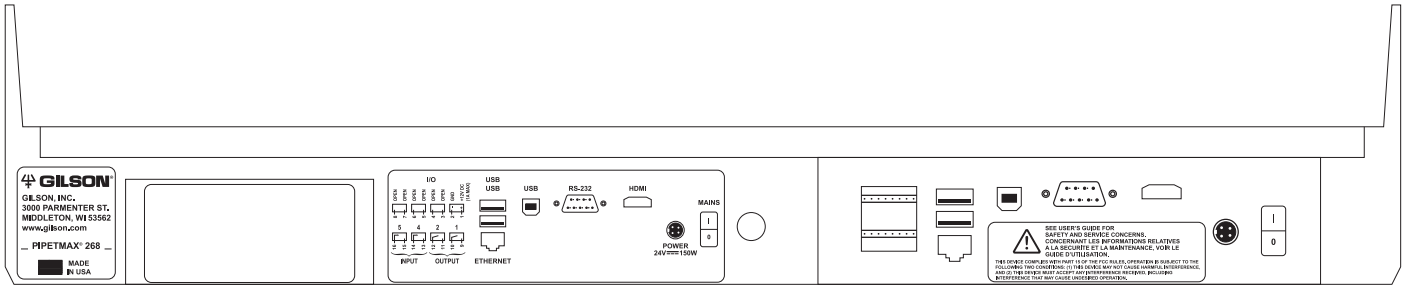
PIPETMAX® 268 Rear Panel

PIPETMAX® 268 Rear Panel Connections

1   Input/Output

2   USB host (Not Supported)

3   USB host

4   Ethernet (Not Supported)

5   USB device

6   RS-232 (Not Supported)

7   HDMI (Not Supported)

8   Power receptacle

9   Power switch (MAINS)

Input/Output

The input/output contacts on the rear panel are used for communication between the alignment head and TRILUTION® micro and for communication between the external safety interlock sensor and TRILUTION® micro. The contacts can also be used to control peripheral devices. Refer to the diagram on for the location of the input/output ports.

Contact Inputs

The bottom terminal block on PIPETMAX has two paired input contacts that are labeled 4 and 5.

Never connect voltages higher than 5V DC to an input. When using TTL signals, be sure to match GROUND connections.

Contact Outputs

The bottom terminal block on PIPETMAX has two paired, isolated-relay contact closures that are labeled 1 and 2.

DC Power Output

The top terminal block has one +12V DC output, which is labeled.

Making Connections

The following are needed to make connections:

*   2-conductor cable (22–30 gauge for each wire)
*   wire insulation stripper

A 6-foot piece of suitable cable (part number 709910206) is available for purchase from Gilson.

To make connections with the 2-conductor cable:

1   Cut the cable into pieces of appropriate length.

2   Strip about 8 mm of insulation from each end of the cable.

3   Remove the terminal block connector from PIPETMAX.

4   Press in the spring-loaded retainer for the appropriate terminal on the terminal block connector. Insert each wire into the appropriate terminal on the terminal block connector and then release the spring-loaded retainer.

5   Reconnect the terminal block connector to PIPETMAX. Push the connector in as far as it will go. It is designed to fit snugly into its receptacle.

6   Connect the opposite ends of the wires to the other device(s). Be sure to match ground connections.

7   Label each cable to identify the purpose of the connection.

USB Host

PIPETMAX has one functional USB host port (the middle port) on the rear panel. The top port on the rear panel is not supported.

The USB ports can be used to connect USB drives (which can also be seen by the tablet when plugged into PIPETMAX), keyboard, mouse, or any other compatible device (heater/chiller, barcode scanner, or shaker, for example).

Ethernet Port

Not supported.

RS-232

Not supported.

HDMI

Not supported.

USB Device

The USB device port is used for communication between PIPETMAX and the tablet or PC.

A USB cable is provided as a standard accessory. Refer to the diagram on page 2-4 for the location of the USB device port.

Power Cord Connection

Use the power cord on the external power supply to make the connection between the power receptacle on PIPETMAX and the external power supply.

The connection from the external power supply to PIPETMAX uses a connector with a locking collar. Check the alignment of the pins and then push it in until it clicks and locks in place. To disconnect, pull back on the locking collar and then disconnect the cable from the rear panel of PIPETMAX.

to tablet or computer

external power supply
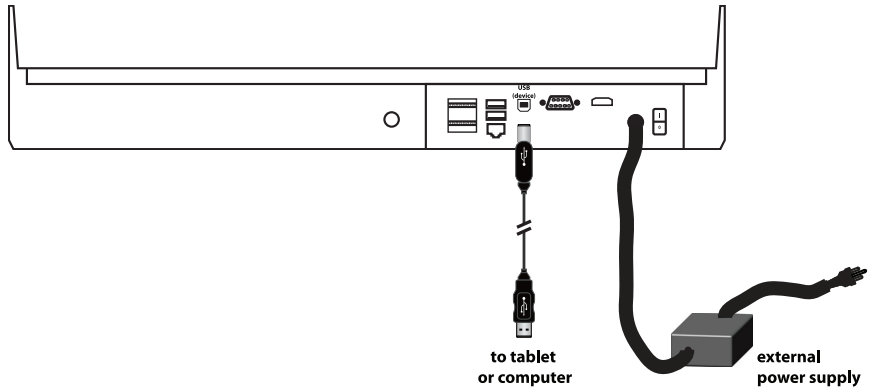
Locate the appropriate power cord for your line voltage and then make the connection between the external power supply and the AC power source.

Drain Connection (Optional)

The PIPETMAX bed includes a drain. Optionally, connect a 1/8" NPT fitting and drain tubing. Ensure that the waste container is lower than the bed of PIPETMAX.

drain

Front Panel Diagram

Front Panel Diagram

1   USB host

2   STOP

USB Host

PIPETMAX has two functional USB host ports on the front panel.

The USB ports can be used to connect USB drives (which can also be seen by the tablet when plugged into PIPETMAX), keyboard, mouse, or any other compatible device (heater/chiller, barcode scanner, or shaker, for example).

STOP

In a situation where an emergency stop is required, pressing the STOP button stops PIPETMAX immediately. The protocol stops and results are displayed (after touching OK on the notification).

Power On and Start Up

To start PIPETMAX:
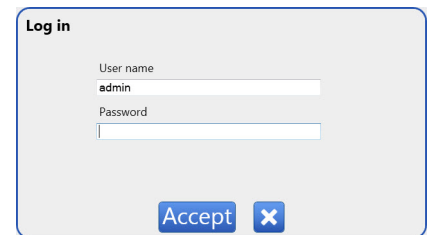
1   Make sure that PIPETMAX is connected to the external power supply and that the external power supply is connected to a power source.

2   Turn power on at the external power supply.

3   Turn PIPETMAX power on using the MAINS power switch located on the rear panel. The indicator light on the front panel illuminates.

4   Connect the tablet or PC to a power source and power it on.

5   Start TRILUTION® micro (PC users only). TRILUTION® micro starts automatically on the tablet.

    •   Click the Start button and then select **All Programs** > **Gilson Applications** > **TRILUTION micro** > **TRILUTION micro x.x**.

6   Close the rotating cover or hood door. PIPETMAX will not operate with the cover or hood door open.

Log In

When prompted, enter the "User name" and "Password", and then select **Accept** (or **X** to cancel). The default "User name" is 'admin' and the "Password" is 'Gilson268'.

Note: Password is case-sensitive.

Note: On the tablet, the "Log in" screen also provides options for shutdown. For more information, refer to Shutdown on page 2-11.

| Log in |
| --- |
| User name |
| admin |
| Password |
| |
| Accept ✖ |

User Management

The user management feature in TRILUTION® micro provides a way for administrators to grant or restrict users access to programs and features in the software. User management is accessible from the main screen shown when the software starts.

Change Password

It is recommended to change the password for the default administrator (admin).

1   Select the "User name (Full name)" in TRILUTION® micro to go to the "User properties" screen.

2   Enter a new "Password" for the user, and then enter the password again in the "Password confirm" field.

3   Select **Save** to save, or **Back** to return to the previous screen without saving.
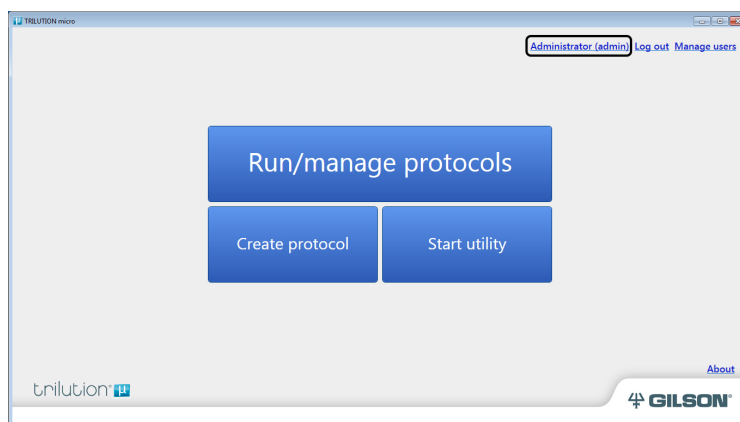
Edit User Properties

1   Select the "User name (Full name)" in TRILUTION® micro to go to the "User properties" screen.

2   Edit the "Full name" and/or "Password". If editing the "Password", re-enter the password in the "Password confirm" field.

   •   For the default administrator (admin), "Full name" cannot be modified.

3   Select **Save** to save, or **Back** to return to the previous screen without saving.

Administrator

1   Select **Manage Users** in TRILUTION® micro to go to the "User management" screen. The "User management" screen displays a list of users.

2   Select a user from the list.

3   Select **Edit**. The "User properties" screen appears.

4   Edit any or all properties ("User name", "Full name", "Password", "Is administrator", "Is active", and "Feature permissions").

   •   "User name" may not be modified for the logged in user.

   •   For the default administrator (admin), only "Password" and "Feature permissions" may be modified.

5   Select **Save** to save, or **Back** to return to the previous screen without saving.
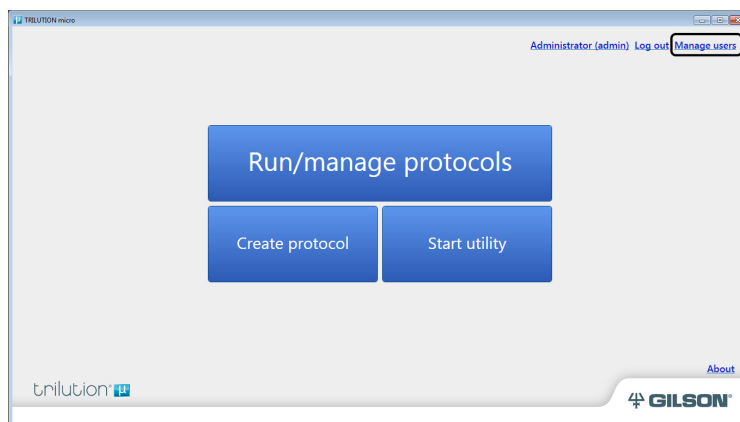
Add Users (Administrators Only)

1   Select **Manage users** in TRILUTION® micro to go to the "User management" screen. The "User management" screen displays a list of users.

2   Select **Add** to add a new user. The "New user" screen appears.

3   Enter a "User name".

   •   It cannot be the same as any other "User name".

   •   It can be 1 to 50 characters in length, must begin with an English letter or number, and may contain the following special characters: _ ()-@.and,. Spaces are valid.

4   Enter the "Full name" for the user.

   •   It can be 1 to 100 characters in length, must begin with an English letter or number, and may contain the following special characters: _ ()-@.and,. Spaces are valid.

5   Optionally, enter a "Password" for the user. The user can change the "Password" at any time.

   •   It can be 1 to 50 characters in length, must begin with an English letter or number, and may contain the following special characters: _ ()-@.and,. Spaces are valid.

   •   "It is case-sensitive, but is not required. (Password can be blank.)

6   If a "Password" was entered, re-enter the password in the "Password confirm" field.

7   Select "Is administrator" to assign administrator access to the user.

8   By default, "Is active" is selected. Clear the check box to deny the user access to the software. The user remains in the user list and can be changed to active by an Administrator at any time.

9   Under "Feature permissions", clear the check box for any software to which the user should not have access. (By default, a new user has access to all software.)

10   Select **Save** to save, or **Back** to return to the previous screen without saving.
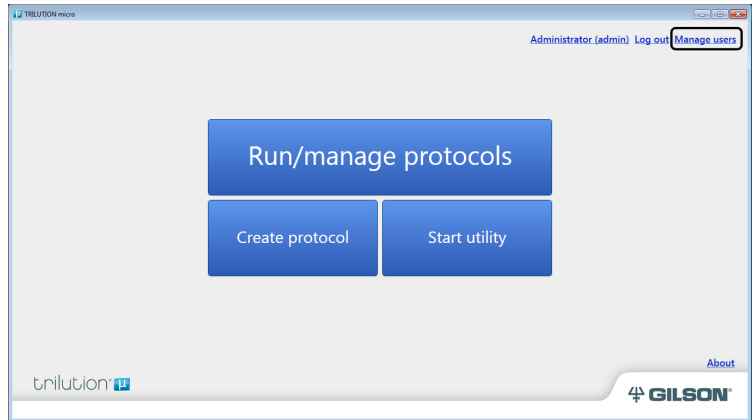
Delete Users (Administrators Only)

Administrators can delete users; however, the default administrator (admin) cannot be deleted.

1   Select **Manage Users** in TRILUTION® micro to go to the "User management" screen. The "User management" screen displays a list of users.

2   Select a user from the list.

3   Select **Delete**. A message will appear asking if you wish to delete the user.

4   Select **Yes** to delete the user. Or, select **No** to close the message without deleting the user.

Touchscreen Tablet Overview

The following information provides an explanation of unique software interactions when running TRILUTION® micro on the touchscreen tablet. It is recommended to keep the tablet plugged into a power source whenever possible.
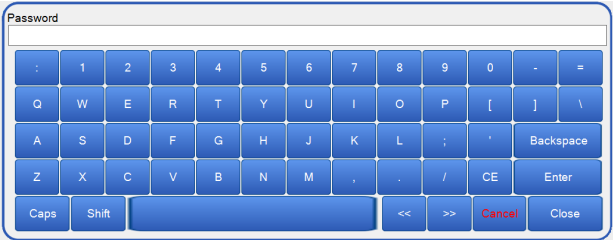
Icons and Fields

The following icons appear on several screens in TRILUTION® micro.

Icon	Description
	Select to return to the "Home" screen.
	Select to view the help information for the current screen.
	Indicates invalid or missing data error. • On the touchscreen tablet, touch and hold the icon, and then release to display details about the error. Touch to close. • On a PC, right-click on the icon to display details about the error. Click to close.
	Indicates that there is more information available to view. • On the touchscreen tablet, touch and hold the icon, and then release to display the information. Touch to close. • On a PC, right-click on the icon to display the information. Click to close.

On-Screen Keyboard

Refer to the table before for a description of some icons and buttons used in the on-screen keyboards.

Icon	Description	Button	Description
	Clear entry	CE	Clear entry
	Cancel entry	Enter	Accept entry and close keyboard
	Accept entry	Cancel	Clear entry and close keyboard
		Close	Accept entry and close keyboard

Shutdown

To view the options to shut down the tablet and/or TRILUTION® micro, select .

• Touch **Shut down** to close TRILUTION micro and shut down the tablet.

• Touch **Restart TRILUTION micro** to restart only the software, and not the tablet.

• Touch **Cancel** to go back.

Run Alignment Protocol

Run the Alignment Protocol to ensure proper alignment. It is only necessary to run this protocol when setting up the instrument for the first time, or if instructed to do so by your local Gilson representative.

Prepare to Run Alignment Protocol

1 Pass the end of the alignment cable cord with pre-wired connector through the outlet at the back of PIPETMAX.

2 The connector is labeled BOTTOM because it connects to the bottom set of input/output ports on the rear panel of PIPETMAX. Make the connection.

3 The clips to secure the tip racks on the tray can interfere with the alignment. Ensure that the clips (   ) are positioned as shown in the diagram below, and that the thumbscrews have been tightened.
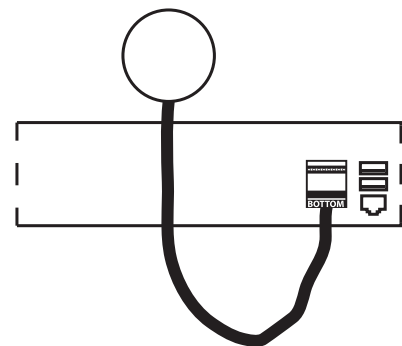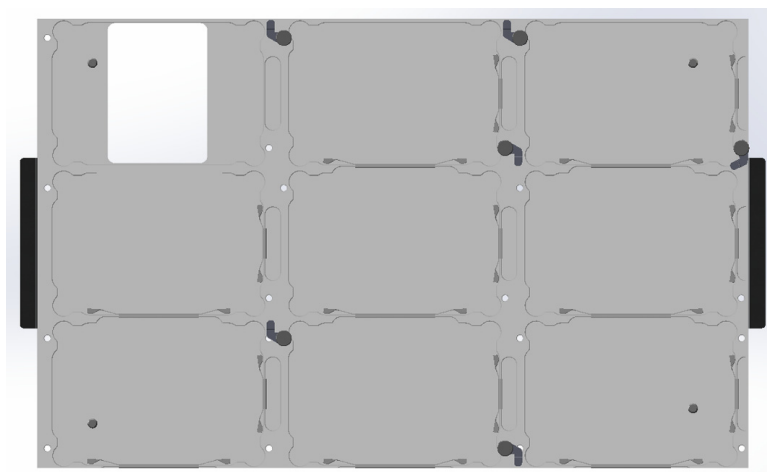

**from alignment head
to BOTTOM input/output port**

4 Close the rotating cover or the fume hood door.

5 The tablet starts TRILUTION® micro automatically on power up. If running protocols from a PC, start TRILUTION micro.

Run Alignment Protocol

1   Select **Run/manage protocols**.

2   Select **Run a protocol**.

3   Select Alignment Protocol and then select **Next**.

4   The Scanning dialog appears while the software checks that PIPETMAX is connected. If connected, the software goes to the next screen. If not connected, a message will appear suggesting possible solutions.

5   Select **Skip setup** on the "Labware setup guide" screen.

6   Select **Run protocol**.

7   Wait approximately 3 minutes while the Alignment Protocol runs.

8   A notification appears when the Alignment Protocol is complete. Select **Continue**.
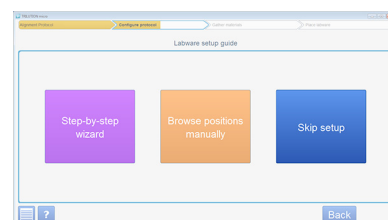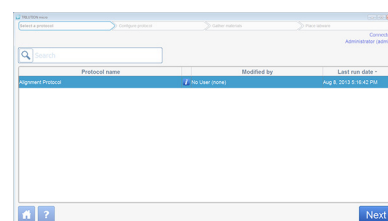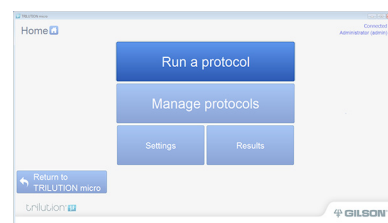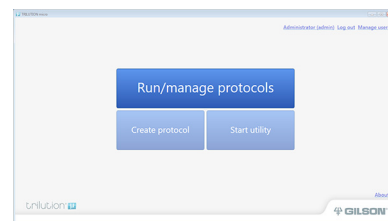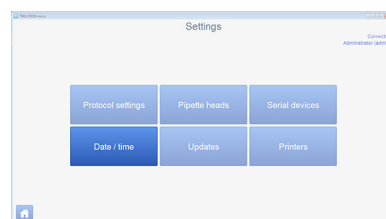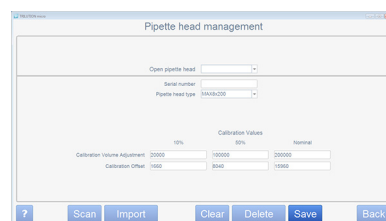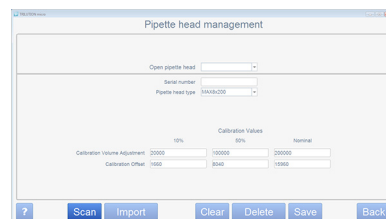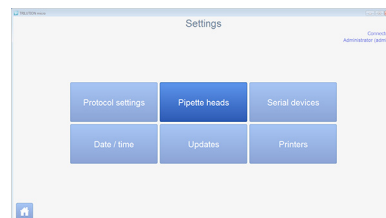
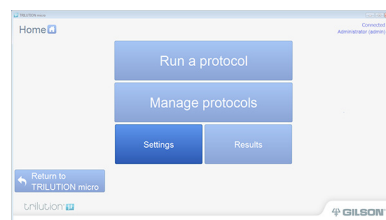# Run Application Protocol

Import Application Protocol

1   Select ⌂ to go to the "Home" screen.

2   If your protocol file is on a USB drive, connect it to one of the USB ports on the front of PIPETMAX or the middle USB host port on the rear panel. (The top USB port on the rear panel is not supported.)

3   Select **Manage protocols** to go to the listing of protocols.

4   Select **Import** and then browse for your application protocol file (.sqlite).

5   Select the file and then select **Open** to import the protocol file.
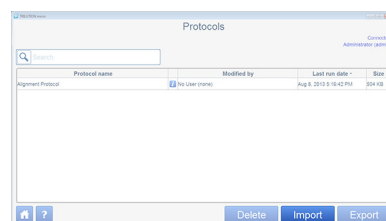
Add Pipette Head(s)

Each pipette head that may be used now, or in the future, must be added per the instructions that follow.

1   On the "Home "screen, select **Settings**.

2   On the "Settings" screen, select **Pipette heads**.

3   Do any of the following:

   •   If using a tablet, select **Scan** and then select **Camera**. Optionally, select the icon to switch between the front and rear camera. When prompted, scan the barcode on the pipette head.

   •   Enter the values from the Gilson Quality Control Report supplied with each pipette head.

   •   Using the optional barcode scanner (ordered separately), select **Scan,** and then scan the barcode on the pipette head.

4   Select **Save**.

5   Repeat steps 3 and 4 for additional pipette heads. When finished adding heads, select **Back**.

Set Date and Time

Set the date and time to ensure a correct date/time stamp on protocol runs. This should only have to be done once.

On the "Settings" screen, select **Date/time**, and then set the date, time, and time zone.

Run Application Protocol

The "Labware setup guide" screen displays the options for confirming the instrument setup.

Select **Step-by-step wizard** to do all of the following (in the order shown):

•   Review a list of the materials.

•   Review the layout of the tray, set up pipette heads, and add new pipette heads (if necessary).

•   Set up all of the tip racks and labware.

•   Review and/or set initial volumes.

Select **Browse positions manually** to do any of the following:

•   Review the layout of the tray, review pipette heads, and set up or add new pipette heads (if necessary).

•   Select and set up specific tip racks and labware.

•   Review and/or set initial volumes.

Select **Skip setup** to skip setup instructions and go to the "Wizard complete" screen. Initial volumes will be set to the default values or the values used the last time the protocol was run.
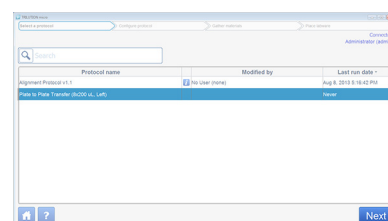
<div style="float:left"></div>

Step-by-step Wizard

1   Select 🏠 to go to the "Home" screen.

2   Select **Run a protocol**.

Select a Protocol

1   Select your protocol, and then select **Next**.

2   The Scanning dialog appears while the software checks that PIPETMAX is connected. If connected, the software goes to the next screen. If not connected, a message will appear suggesting possible solutions.

Variables

If your protocol has variables, enter a value for each, and then select **Next**.

When entering a value for a location, the following applies:

•   Use a colon (:) to specify a range.

•   Ranges can be numeric or alphanumeric.

•   Numeric ranges will be processed sequentially.

•   Alphanumeric ranges will be processed in a batch, if possible.

•   Use a comma (,) to separate values or ranges.

•   Specify the starting location first.

•   A dash (-) is not valid.
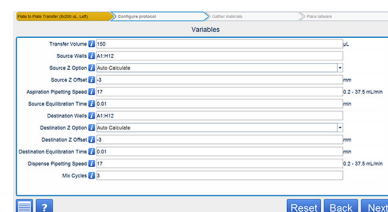
Labware Setup Guide

Select **Step-by-step wizard**.

The Step-by step wizard includes:

•   Gather Materials (Materials List)

•   Pipette Head and Tray Setup (which includes Remove Alignment Head (If Installed), Connect External Safety Interlock Sensor, Install Tip Ejector Foot, Install Pipette Head(s), Finish Tip Ejector Foot Installation, and Select Pipette Head Serial Number)

•   Review Initial Volumes

•   Run Protocol
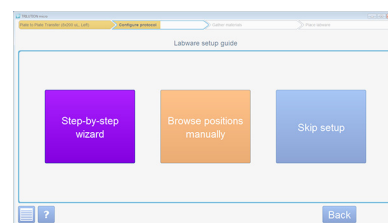
Gather Materials (Materials List)

Gather the materials in the Materials list and a tip reload block for each rack, and then select **Next**.
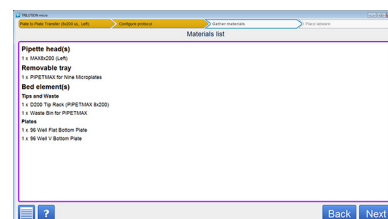
Pipette Head and Tray Setup

Wait for the software to finish "Preparing pipette head" and then open the rotating cover or the hood door.

Remove Alignment Head (If Installed)

Remove the alignment head by disconnecting the terminal block connector from the rear panel, and then removing the thumb nuts securing it to the upper pipette head assembly. Cover the hole on the rear panel from the exterior using the black plug supplied in the accessory package.
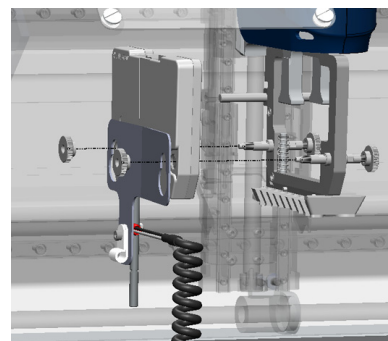

black plug

Connect External Safety Interlock Sensor

If your PIPETMAX does not have a rotating cover, connect the terminal block connectors for the external safety interlock sensor to the input/output ports on the rear panel. They are labeled TOP and BOTTOM to help ensure proper connection.

from external safety interlock sensor to input/output ports

Install Tip Ejector Foot

If using a MAX8x20 or MAX8x200 pipette head, skip to Install Pipette Head(s) on page 2-18. If using the MAX1000 pipette head, you ordered a tip ejector foot kit for eight and one channel.

1   Using the supplied 3/32" hex wrench, remove the shoulder screw in the installed tip ejector foot.

2   Remove the tip ejector foot.

3   Slide the tip ejector foot for eight and one channel onto the ejector leg.

4   Use the supplied 3/32" hex wrench to start threading the shoulder screw, but do not fully tighten.

Install Pipette Head(s)

Install the pipette head(s) on the upper pipette head assembly using the thumb nuts. Ensure proper alignment of the pipette head against the upper pipette head assembly before tightening the thumb nuts.
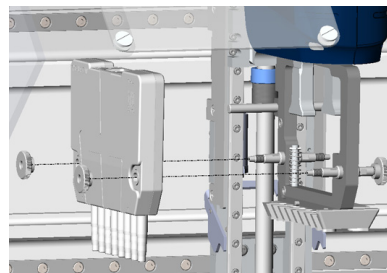
- If using only one pipette head, install a blank head on the other side. Refer to the following instructions for how to convert the alignment head into a blank head. The instructions describe how to convert it and remove it; however, it can be converted while installed.

  a) Push up to remove the bracket that is attached to alignment head.

  b) Remove the thumb nuts securing the alignment head to the upper pipette head assembly.

  c) Pull down on the alignment pin to remove it.

  d) Install the blank head on the upper pipette head assembly using the thumb nuts.

- If a pipette head is already installed and needs to be removed, remove the pipette head by removing the thumb nuts securing it to the upper pipette head assembly.


remove this bracket

pull down to remove
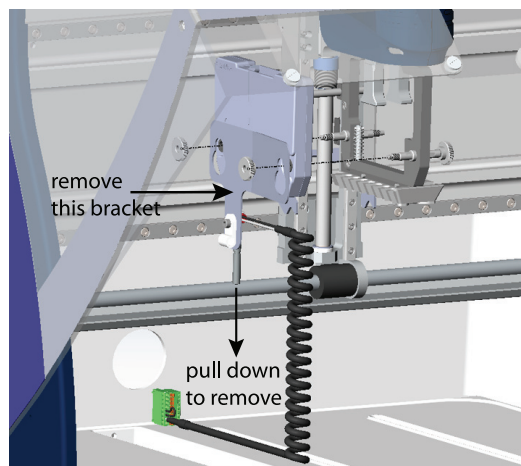
Finish Tip Ejector Foot Installation

If using a MAX8x20 or MAX8x200 pipette head, skip to the next step (Select Pipette Head Serial Number).

Manually move the tip ejector foot down to the bottom, and while holding it down, tighten the shoulder screw.
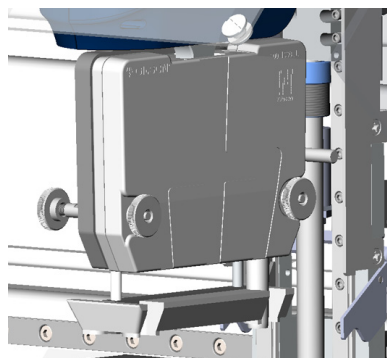
Select Pipette Head Serial Number

Select the serial number for each installed pipette head from the drop-down lists, close the rotating cover or hood door, and then select **Next.**

If the serial number is not displayed in the drop-down list, the pipette head must be added:

1   Select **Add new pipette head**.

2   Do any of the following:

- If using a tablet, select **Scan** and then select **Camera**. Optionally, select the icon to switch between the front and rear camera. When prompted, scan the barcode on the pipette head.

- Enter the values from the Gilson Quality Control Report supplied with each pipette head.

- Using the optional barcode scanner (ordered separately), select **Scan,** and then scan the barcode on the pipette head.

3   Select **Save**.

4   Repeat steps 2 and 3 for additional pipette heads. When finished adding heads, select **Back**.

5   Select the serial number for each installed head, close the rotating cover or hood door, and then select **Next**.
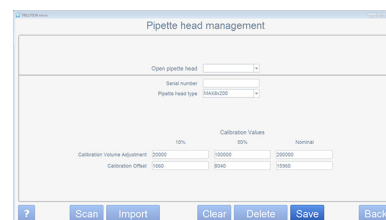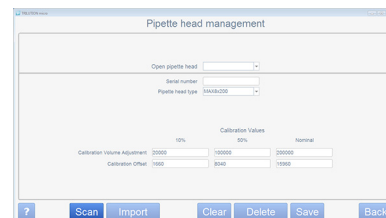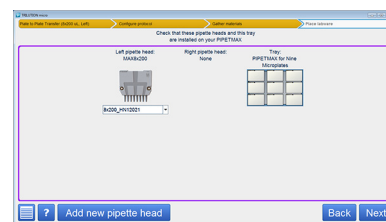
Tip Setup and Labware Setup

Proceed through the "Tip setup" and "Labware setup" screens by reviewing the information, making any desired, allowable changes, and then touching **Next**. The screens indicate the labware to use and where to place it on the tray.

Tip Rack Assembly

Each tip rack consists of a tip pack and a tip reload block.

To assemble the tip rack:

1   Open the sealed blister pack.

2   Lift the tip pack out of the blister pack.

3   Set the tip pack on the tip reload block. Ensure that the tip pack is fully seated on the tip reload block.

4   Remove the cover.
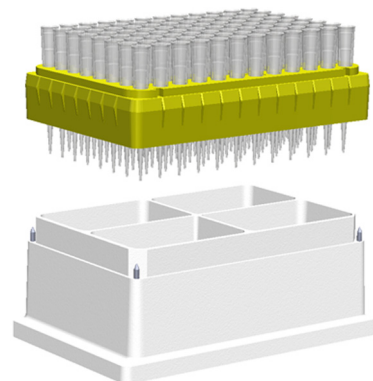
Tip Rack Assembly

Tip Rack Placement

Tip racks can only be placed in positions with installed clips.

To install the tip rack:

1   Loosen the thumbscrew for each clip.

2   Place the tip rack on the removable tray with the beveled corner in the back left corner.

3   Rotate each clip so that it will effectively secure the tip rack on the tray as shown in the image below.
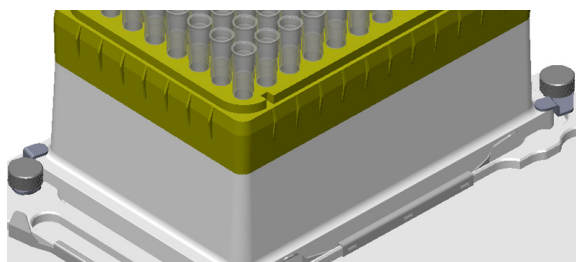
4   Tighten the thumbscrew for each clip.
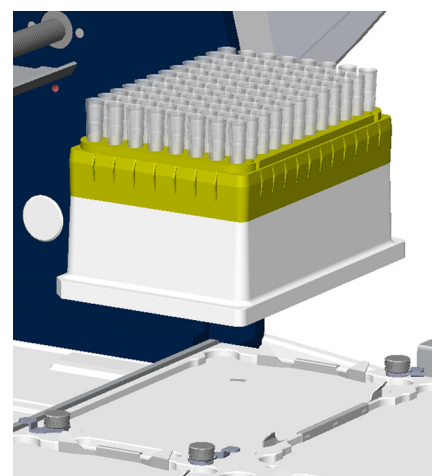
Beveled Corner Back Left

Changing Tip Pack During the Run

If prompted during the run to refill the tip rack, use two hands and lift carefully when removing the empty tip pack from the tip reload block. Jarring movements could cause spillage of liquids from other racks.

Tip Rack Removal

To remove the tip rack from the removable tray:

1   Loosen the thumbscrew for each clip.

2   Rotate each clip away from the tip reload block.

3   Lift the tip rack off the removable tray.

4   Remove the tip pack from the tip reload block.

Review Initial Volumes

Review initial volumes, make any desired, allowable changes, and then select **Next**.

Run Protocol

1   Select **Run protocol**.

2   When prompted, it is recommended to simulate if this is the first time running the protocol.

Run Application Protocol
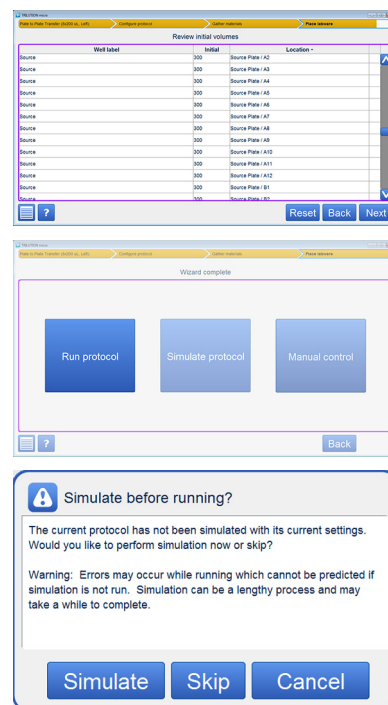
Browse Positions Manually

The "Labware setup guide" screen displays the options for confirming the instrument setup.

Select **Browse positions manually** to do any of the following:

• Review the layout of the tray, review pipette heads, and set up or add new pipette heads (if necessary).

• Select and set up specific tip racks and labware.
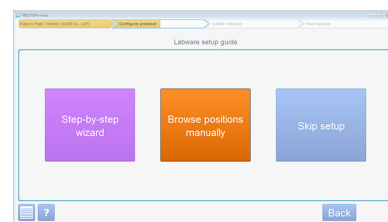
Manual Setup

After choosing Browse positions manually, most of the protocol setup occurs on the "Manual setup" screen.

The "Manual setup" screen displays an image of the tray and allows you to choose which tips or labware to set up and also displays an image of the pipette heads with serial numbers required for the protocol so that you can confirm that your hardware configuration matches what the software expects.
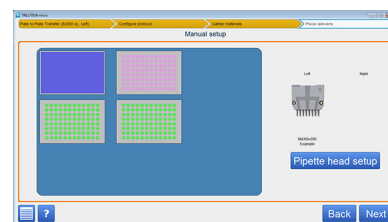
Pipette Head Setup

Select **Pipette head setup** to go to the "Pipette head and tray setup" screen for selecting or adding pipette heads. The software will remember your selection when you go back to the "Manual setup" screen.

Tip or Labware Setup

Select a tip rack or a rack in the tray to go to the setup screen for that item.

• Select a tip rack to go to the "Tip setup" screen.

• Select a rack to go to the "Labware setup" screen.

Review Initial Volumes

Review initial volumes, make any desired, allowable changes, and then select **Next**.

Wizard Complete

1 On the "Wizard complete" screen, select **Run protocol.**
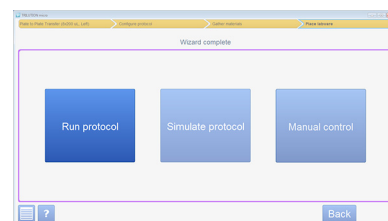
2 When prompted, it is recommended to simulate.
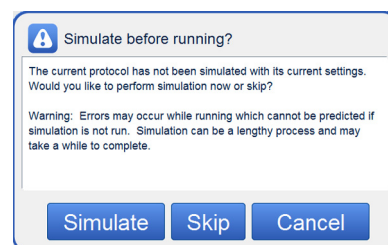
Pause or Stop a Running Protocol

| NOTICE | While the run is in progress, DO NOT open the hood; however, if the hood has been opened and you choose to continue the run, observe that the run resumes as expected. |

Pause

While running a protocol, select anywhere on the PIPET STATUS image to pause the run. The run will stop when it finishes its current action. The protocol run timer keeps advancing during the pause. When prompted, select **Continue** to resume the run, or **Stop** to end the run and view the results.

STOP

To stop PIPETMAX immediately, press the red STOP button on the front of PIPETMAX.
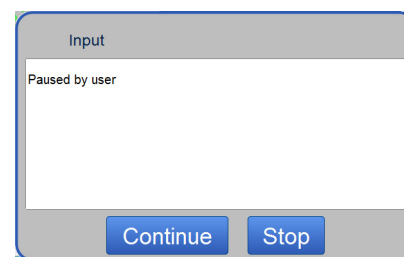
View Results

During and after a protocol run, information is available about volumes (initial volume, volume added, volume removed, and current volume).

After a protocol run, results for that run are automatically displayed.

To view results:

1   Select 🏠 to go to the "Home" screen.

2   Select **Results**.

3   Select a protocol, and then select **Results**.

4   Select a protocol run, and then select **View**. Simulated runs are identified by ☑.
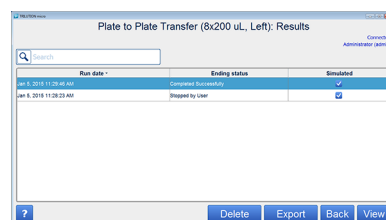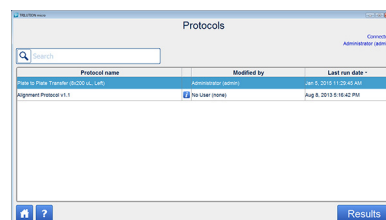
Tray View

The first screen displayed when viewing results is the "Tray view" screen.

The colors indicate the following information:

•   Red - Negative volume

•   Green - Volume in the tube or well

•   Blue - Empty tube or well

•   Pink - Tips

Select a tip rack, plate, or rack for more information about the selection. For more information, refer to Labware View on page 2-25.

The top of the screen shows the status, the name of the protocol, the time it took to run or simulate the protocol and generate the results, and the time of execution for the last step.

Labware View

The "Labware view" screen displays an image for the selected labware (tip rack, plate, rack, etc.) and the bed element name assigned to it.

Select a well or tube for more information about the selection. For more information, refer to Volume View on page 2-26.

The top of the screen shows the status, the name of the protocol, the time it took to run or simulate the protocol and generate the results, and the time of execution for the last step.

Tip Rack

Source

Destination

Tip Waste

Volume View

The "Volume view" screen displays information about the volume in the selected tube or well.

The top of the screen shows the status, the name of the protocol, the time it took to run or simulate the protocol and generate the results, and the time of execution for the last step.

The text above the table lists the bed element name, the well location and label, and the current volume in the well.

The table lists the actions that occurred in the well or tube in the following order:

- Initial volume (if any)

- Volume added and the source of the volume added (bed element name and plate index or tube number)

- Volume removed

Source

Destination

Steps View

The "Steps view" screen displays the steps that were run in the protocol in the order of execution.

The top of the screen shows the status, the name of the protocol, the time it took to run or simulate the protocol and generate the results, and the time of execution for the last step.

Run Report

The Run Report is a subset of the results and can be exported for viewing. It cannot be viewed from within the software or on the tablet.

It includes basic information about the protocol run, the bed layout, and well tracking.

It does not include the information about volume tracking.

Export and View Run Report

1 Select 🏠 to go to the "Home" screen.

2 Select **Results**.

3 Select a protocol, and then select **Results**.

4 Select a protocol run, and then select **Export**.

5 Select the file type for the exported file: .htm (default), .xml, or .csv.

6 Browse for and select the USB drive, name the file (or accept the default name, which is the name of the protocol), and then select **Save**.
The Run Report is saved to the location.

7 Open the file on a PC.

PIPETMAX 268 Run Report

Protocol name:	Plate to Plate Transfer (8x200 uL, Left)
Created by:	dev
Run date:	07/31/2013 1:55:15
Run by:	Administrator (Admin)
Mode:	Run
Completion status:	Completed Successfully

Bed layout
Template: PIPETMAX for Nine Microplates
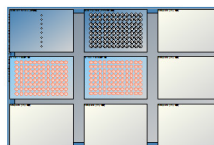
Well tracking
Destination Plate
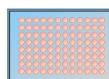
Destination Plate

#	Well location	Well label	Contents
1	A1	Sample	150 µl source Sample; 150 µl source Sample
2	B1	Sample	150 µl source Sample; 150 µl source Sample
3	C1	Sample	150 µl source Sample; 150 µl source Sample
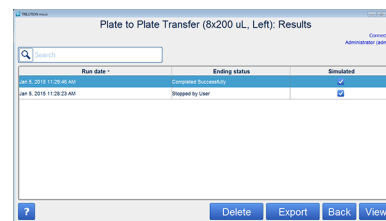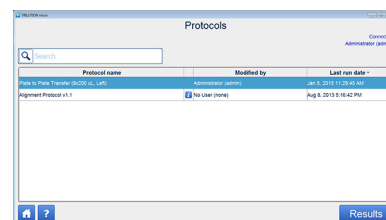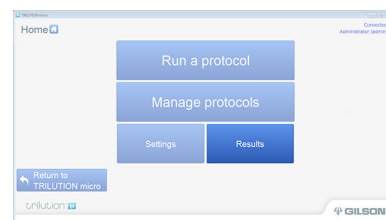
Export Protocol

To export a protocol (and its results):

1   Select [home icon] to go to the "Home" screen.

2   Select **Manage protocols** to go to the listing of protocols.

3   Select a protocol in the list. It will highlight when selected.

4   Select **Export**.

5   Browse for and select the destination for the protocol file, and then select **Open**.

The protocol is saved to the location with a .SQLITE extension.
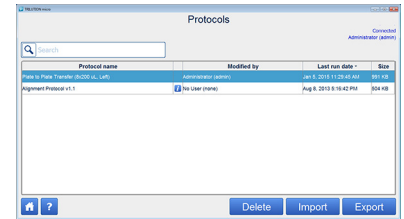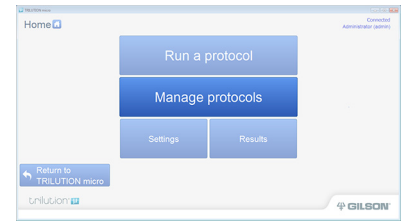
Log Out

1   Select [home icon] to go to the "Home" screen.

2   Select **Return to TRILUTION micro**.

3   Select **Log out** to allow another user to log in to the software.

Messages 3

TRILUTION® micro will display a message if a known error is encountered. This chapter describes some of the more common errors and how to prevent or resolve them.

This chapter includes:

- Communication
- Simulation
- Hood Open
- Insufficient Volume/Excessive Volume
- Refill Tip Rack

Communication

If a message appears that indicates that PIPETMAX cannot be found, check your settings (including serial number) and cabling.

> The PIPETMAX and the software are not communicating.
> Do you want to continue?
> Touch Yes to continue and run a simulation or touch No or X to cancel.
> Check your settings (including serial number) and cabling before attempting to run again.
>
> Yes   No   ✖
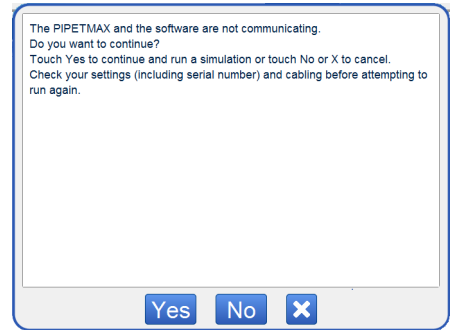
Simulation

TRILUTION micro includes a pre-run simulation feature that can detect errors that would be encountered during a run.

> ⚠ Simulate before running?
>
> The current protocol has not been simulated with its current settings. Would you like to perform simulation now or skip?
>
> Warning: Errors may occur while running which cannot be predicted if simulation is not run. Simulation can be a lengthy process and may take a while to complete.
>
> Simulate   Skip   Cancel
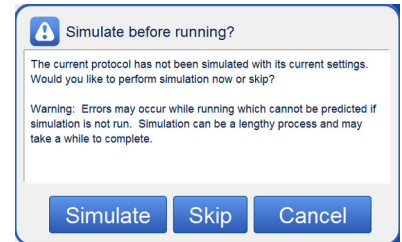
Hood Open

Close the rotating cover or hood door. PIPETMAX will not operate with the cover or hood door open.

NOTICE While the run is in progress, DO NOT open the hood; however, if the hood has been opened, you will see the following message. If you choose to continue the run, close the rotating cover or hood door and then observe that the run resumes as expected.

> Input
>
> Hood open
>
> Continue   Stop
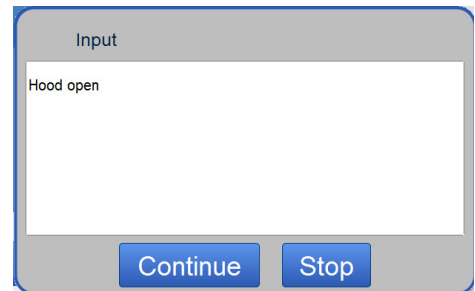
The preferred way to stop a run is via the on-screen pause button.

In an emergency, press the STOP button on the front panel of PIPETMAX.

For more information, refer to Pause or Stop a Running Protocol on page 2-23.
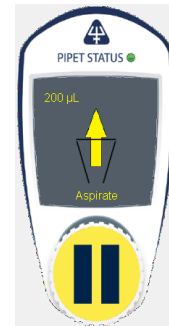
On-screen pause button

Insufficient Volume/Excessive Volume

If there is not enough volume in a well or tube to complete an aspirate or if a dispense will overfill a well or tube, TRILUTION micro will display a message with an illustration that identifies the location of the plate on the tray and the well or tube with the incorrect volume.

To resolve this error:

1   Open the rotating cover or hood door.

2   Add or remove volume from the well or tube with the incorrect volume.

3   Close the rotating cover or hood door.

4   Enter the volume added or removed.

5   Optionally, select "Don't continue Checking Volume" if you do not want to be notified or other wells with insufficient or excessive volume in this protocol run.

6   Touch **Continue** to resume the run or **Stop** to stop the run.
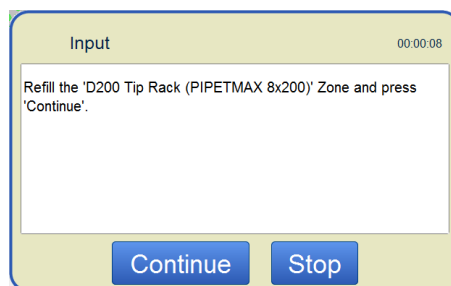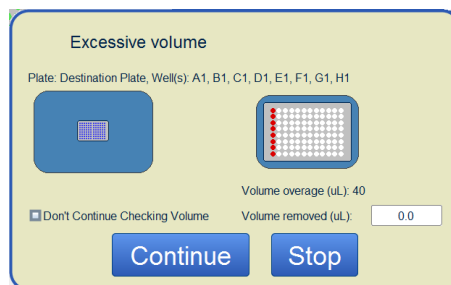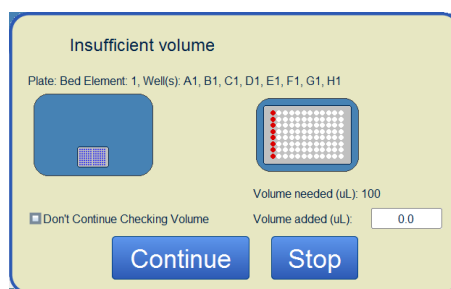
Refill Tip Rack

If the during a simulation the software calculates that you do not have enough tips to run your protocol or if while running the protocol you run out of tips, the message at right appears. Open the rotating cover or hood door, replace or refill the tip rack, close the rotating cover or hood door, and then touch **Continue**.

Note: Use two hands and lift carefully when removing the empty tip pack from the tip reload block. Jarring movements could cause spillage of liquids from other racks.

Insufficient volume

Plate: Bed Element: 1, Well(s): A1, B1, C1, D1, E1, F1, G1, H1

Volume needed (uL): 100

☐ Don't Continue Checking Volume   Volume added (uL):   0.0

Continue   Stop

Excessive volume

Plate: Destination Plate, Well(s): A1, B1, C1, D1, E1, F1, G1, H1

Volume overage (uL): 40

☐ Don't Continue Checking Volume   Volume removed (uL):   0.0

Continue   Stop

Input   00:00:08

Refill the 'D200 Tip Rack (PIPETMAX 8x200)' Zone and press 'Continue'.

Continue   Stop

Maintenance 4

PIPETMAX is designed to require a minimum level of maintenance.

This chapter includes information about:

- Cleaning
- Add Pipette Heads
- Replace Pipette Heads
- Convert Blank Head into Alignment Head

Cleaning

Keep PIPETMAX clean for peak performance. Always turn the power off to PIPETMAX before cleaning. Wipe PIPETMAX with a soft cloth dampened with a mild detergent and disinfect as needed. For information about cleaning the touchscreen on the tablet, refer to the documentation supplied with it.

Add Pipette Heads

When adding pipette heads it is necessary to do two things:

1   Add the pipette head to the software by scanning or entering the calibration values. For detailed instructions, refer to Add Pipette Head(s) on page 2-14.

2   Physically install the head on the instrument. For detailed instructions and a diagram, refer to Install Pipette Head(s) on page 2-18.

Replace Pipette Heads

When replacing or changing pipette heads, use the Step-by step wizard. Follow the steps for running an application protocol that start on page 2-14.

Convert Blank Head into Alignment Head

To convert a blank head into an alignment head:

1   Push the alignment pin into the hole furthest back on the blank head. The pin fits either way and there is a magnetic indentation on the pin to lock it in place in the head. You should feel a change when pushing it in and the indentation should not be visible.

2   Install the alignment head on the left side of the upper pipette head assembly using the thumb nuts. Ensure proper alignment of the head against the upper pipette head assembly before tightening the thumb nuts.

3   Align the bracket on the blank head as shown in the illustration.

4   Pull down on the bracket to lock it in place.

bracket

Replacement Parts $\qquad$ A
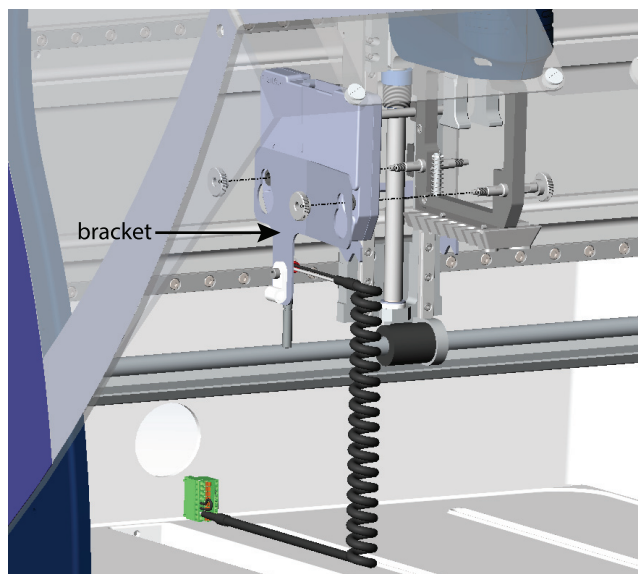
PIPETMAX® 268

Part Number	Description
32100000	PIPETMAX 268 WITH STANDARD COVER
32100001	PIPETMAX 268 WITH COVER CUTOUTS
32100002	PIPETMAX 268 W EXTERNAL SAFETY INTERLOCK

TRILUTION® micro Software

Part Number	Description
32000302	TRILUTION® MICRO INSTALLED ON TOUCHSCREEN TABLET
32000285	TRILUTION® MICRO ON USB DRIVE FOR PC INSTALL

Pipette Heads

Part Number	Description
FC10022	PIPETMAX MAX8X20 PIPETTE HEAD
FC10021	PIPETMAX MAX8X200 PIPETTE HEAD
FC10010	PIPETMAX MAX1000 PIPETTE HEAD

Removable Trays

Part Number	Description
32000109	PIPETMAX 268 TRAY STANDARD 96 WELL
32000091	PIPETMAX 268 TRAY 384 WELL

Tip Reload Block

Part Number	Description
32000175	PIPETMAX TIP RELOAD BLOCK

Replacement Parts

Tip Ejector Feet

Part Number	Description
32000146	PIPETMAX TIP EJECTOR FOOT DUAL 8 CH
32000284	PIPETMAX 268 EJECTOR FOOT KIT 8 & 1 CH

Tips

Part Number	Description
F172210	DIAMOND BLISTER, DSL10, 960 AUTO TIPS
F172211	DIAMOND BLISTER, DSL10ST, 960 AUTO TIPS
F172213	DIAMOND BLISTER, DSFL10ST, 960 AUTO TIPS
F172310	DIAMOND BLISTER, DS200, 960 AUTO TIPS
F172311	DIAMOND BLISTER, DS200ST, 960 AUTO TIPS
F172313	DIAMOND BLISTER, DSF30ST, 960 AUTO TIPS
F172513	DIAMOND BLISTER, DSF200ST, 960 AUTO TIPS
F172510	DIAMOND BLISTER, DS1000, 960 AUTO TIPS
F172511	DIAMOND BLISTER DS1000ST, 960 AUTO TIPS
F172613	DIAMOND BLISTER DSF1000ST, 960 AUTO TIPS
F172200	DIAMOND BLISTER, DL10, 960 TIPS
F172300	DIAMOND BLISTER, D200, 960 TIPS
F172500	DIAMOND BLISTER, D1000, 960 TIPS
F172201	DIAMOND BLISTER, DL10ST, 960 TIPS
F172301	DIAMOND BLISTER, D200ST, 960 TIPS
F172501	DIAMOND BLISTER, D1000ST, 960 TIPS
F172203	DIAMOND BLISTER, DFL10ST, 960 TIPS
F172303	DIAMOND BLISTER, DF30ST, 960 TIPS
F172503	DIAMOND BLISTER, DF200ST, 960 TIPS
F172603	DIAMOND BLISTER, DF1000ST, 960 TIPS

Tip Waste Disposal

Part Number	Description
32000274	TIP DISPOSAL BIN
32000177	PIPETMAX 268 RISER OFF BED TIP DISPOSAL

Racks

Part Number	Description
32000196	RACK CODE 496 PCR TUBES
32000198	RACK CODE 424 1.5-2.0 ML TUBE FLIP CAP
32000197	RACK CODE 425 0.5-2.0 ML TUBE SCREW CAP
32000201	RACK CODE 440 SBS TILT RACK 10 DEG

Passive Temperature (PT) Racks

Part Number	Description
32000232	RACK CODE 424 PT PSV TMP FLP CAP 1.5-2ML
32000200	RACK CODE 425 PT PSV TMP SCR CAP 0.5-2ML
32000233	RACK CODE 410 PT PSV TMP FLAT PLATE
32000238	RACK CODE 496 PT PSV TMP 96 PCR TUBE

Circulating Temperature (CT) Racks

A Circulating Temperature rack requires a circulating bath (ordered separately), RACK CODE 410 CT CIR TMP FLAT PLATE (ordered separately, part number 32000208), INSTALL KIT CT CIR TMP (ordered separately, part number 32000193), and can be used with the following adapters:

Part Number	Description
32000262	ADAPTER 424 CT CIR TMP FLP CAP 1.5-2ML
32000261	ADAPTER 425 CT CIR TMP SCR CAP 0.5-2ML
32000260	ADAPTER 496 CT CIR TMP 96 PCR TUBE

Accessories

Part Number	Description
32000199	ORBITAL SHAKER
32000244	HAND HELD MICROSCAN 2D BARCODE READER
32000241	TABLET HOLDER

Miscellaneous

Part Number	Description
54210001	PIPETMAX 268 PLUG FOR BACK COVER
32000174	PIPETMAX ALIGNMENT HEAD
32000275	PIPETMAX 268 PIPETTE HEAD NUT (QTY 5) SET
32000012	USB A MALE-B MALE 2M BLK