HSM 3.0 Instrument Operating Manual

Instructions for Use of Model Number A2715

TM389 | REVISED 3/25

Table of Contents

All technical literature is available at: **www.promega.com/protocols/**

Visit the website to verify that you are using the most current version of this Technical Manual.

Email Promega Technical Services if you have questions on use of this system: **techserv@promega.com**

1 Introduction

The Heater Shaker Magnet Instrument (HSM 3.0) is designed to perform all the functions necessary for processing magnetic resin-based purification chemistries in large-volume formats. Paramagnetic resin chemistries typically require mixing, heating and a mechanism to efficiently capture the particles. By combining the ability to heat, shake and apply a magnetic field, the HSM 3.0 Instrument provides all-in-one processing capabilities for a variety of large-volume purification chemistries in either manual or automated formats. The instrument uses standard 50ml conical tubes and reagent-based paramagnetic particle (PMP) chemistries. Within PMP-based chemistries the PMPs provide a mobile solid phase that optimizes capture, washing and elution of biological target molecules.

The HSM 3.0 Instrument (Cat.# A2715) is available with software containing pre-programmed isolation methods for processing up to 32 samples of human whole blood in approximately 2–3.5 hours, depending on sample volume and number. Samples are processed in a semi-automated method in which the user aspirates and dispenses reagents and samples as directed by the software on a computer screen. The programmed methods control the shaking, heating, magnetization and timing of the steps required for the semi-automated purification. Administrative level users can edit and save existing methods or create new methods to support large volume purification for user provided or edited protocols. For fully automated purification, the HSM 3.0 Instrument can be integrated with a robotic liquid-handling workstation.

1.1 Intended Use of the HSM 3.0 Instrument

This product is intended for use with Promega reagent kits.

This product is intended for research use only and is not intended for use in diagnostic procedures.

1.2 HSM 3.0 Instrument Specifications

Processing Time (blood genomic DNA): 2–3.5 hours (depending on sample type and number)

Number of Samples: Up to 32 in 50ml conical tubes; 15ml tubes can be supported with the purchase of the low volume adapter (LVA).

Weight:

Main Shaker: 38.8lb (17.6kg)
Power Supply: 4.2lb (1.9kg)

Dimensions: (W × L × H)

Main Shaker: 8.94 × 15.08 × 6.06 inches (227 × 383 × 154mm)
Power Supply: 4.41 × 13.78 × 2.01 inches (112 × 350 × 51mm)

Power Requirements:

Main Shaker: 24 V DC, 25 A
Power Supply: 100–240 VAC, 50–60 Hz

Shaking Orbit: 4mm

Accepts tubes with an OD of no more than 29mm.

Communication: RS232

Software:

HSM 3.0 Software for manual use; integrated automation device drivers for automated use HSM 3.0 Software can be downloaded from:
www.promega.com/resources/tools/hsm-3-0-software/

Minimum Software Requirements:

Windows PC
Processor 1 GHz
RAM 512 MB
Minimum disk space (32-bit) 4.5 GB
Minimum disk space (64-bit) 4.5 GB

Supported operating systems (32-bit or 64-bit):

Microsoft Windows® 10 Pro
Microsoft Windows® 10 Enterprise
Microsoft Windows® 11 Pro
Microsoft Windows® 11 Enterprise

1.3 Product Components

PRODUCT	QUANTITY	CAT.#
HSM 3.0 Instrument	1 each	A2715

For Research Use Only. Not for use in diagnostic procedures. Includes:

- 1 HSM 3.0 Instrument
- 1 HSM Tube Rack
- 1 HSM Tube Rack Stand
- 1 Power Supply for use with HSM 3.0 Instrument
- 1 Power Cable (Blue)
- 1 RS-232 Cable
- 1 USB-to-Serial Converter
- 4 Instrument Feet
- 1 Power Cord (Black)
- 1 6mm Hex Wrench
- 1 2.5mm Hex Wrench
- 1 Spanner
- 1 Setup Guide

1.4 Inspection

Upon receiving your HSM 3.0 Instrument, please inspect the package carefully to make sure all items are present and undamaged. See Figures 1, 2 and 3 for views of the instrument and accessories.

Figure 1. Power Supply, HSM 3.0 Instrument and Tube Rack on Tube Rack Stand (from left to right).

Figure 2. HSM 3.0 Instrument Accessories. A. USB-to-serial converter (box). **B.** RS-232 Cable. **C.** Power Cord (black). **D**. Instrument Power Cable (blue). **Note:** The black Power Cord is shipped in a separate box.

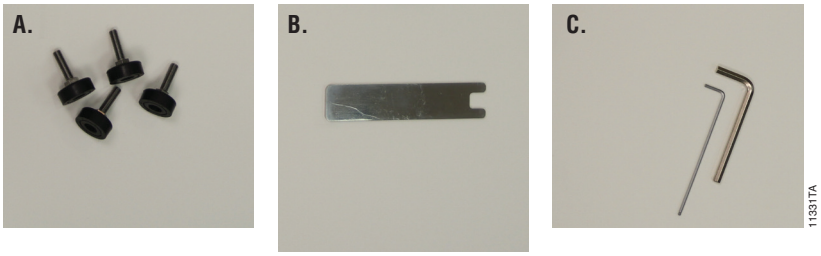


Figure 3. HSM 3.0 Instrument Accessories. A. Instrument Feet. These are screwed into the holes on the bottom of the HSM 3.0 Instrument. **B.** Spanner. **C.** 2.5mm Hex Wrench and 6mm Hex Wrench.

1.5 Precautions

Safety Symbols and Markings		
	Danger. Hazardous voltage. Risk of electrical shock.	Danger. Tension dangereuse. Risque de choc électrique.
	Warning. Risk of personal injury to the operator or a safety hazard to the equipment or surrounding area.	Avertissement. Risque de préjudice corporel pour l'opérateur ou d'accident avec l'instrument ou l'entourage.
	Warning. Pinch point hazard.	Avertissement. Risque de pincement.
	Warning. Hot surface. Burn hazard.	Avertissement. Surface chaude. Risque de brûlure.
	Warning. Biohazard.	Avertissement. Risque biologique.
	Warning. Strong magnet. Can be harmful to pacemaker wearers.	Attention. Aimant puissant. Peut être dangereux pour des porteurs de pacemaker.
	Warning. Magnet may interfere with pacemakers and other devices. Pacemaker wearers stay back 30cm (12 in).	Attention. L'aimant peut avoir des effets sur les pacemakers et autres dispositifs. Les porteurs de pacemaker doivent rester à 30 cm de l'appareil.
	It is important to understand and follow all laws regarding the safe and proper disposal of electrical instrumentation. Please contact your local Promega Representative for disposal of the instrument and power supply. Please follow your institutional requirements for disposal of the accessories.	Avertissement. Il est important de comprendre et de respecter toutes les lois relatives à la destruction sûre et correcte des appareils électriques. Veuillez contacter votre représentant Promega local concernant la destruction de l'appareil. Veuillez respecter les exigences de votre établissement concernant la destruction des accessoires.
	Catalog Number	Numéro de catalogue
	Serial Number	Numéro de série
	This product has been tested to the requirements of CAN/CSA-C22.2 No. 61010-1-12, third edition or a later version of the same standard incorporating the same level of testing requirements.	Ce produit a été testé selon les exigences de CAN/CSA-C22.2 n° 61010-1-12, troisième édition ou une version ultérieure de la même norme intégrant le même niveau d'exigences de test.

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been designed and tested to CISPR 11 Class A. In a domestic environment it may cause radio interference, in which case, you may need to take measures to mitigate the interference.

Do not use this device in proximity to sources of strong electromagnetic radiation (e.g., unshielded intentional RF sources), as these may interfere with the proper operation.

Use only the power supply provided with the instrument. There are no user-serviceable parts in the equipment. Removing the instrument or power supply casing will void the warranty.

	Safety Precautions	Mesures de Sécurité
	Do not use this equipment for anything other than its intended use.	Ne pas utiliser cet instrument à d'autres fins que celle pour laquelle il a été conçu.
	Always disconnect the power before cleaning or performing routine maintenance.	Toujours débrancher le cordon d'alimentation avant d'effectuer le nettoyage ou l'entretien de routine.
	Do not disassemble unit. There are no user-serviceable parts in the equipment.	Ne pas démonter l'appareil. Il n'existe aucune pièce pouvant être changée par l'utilisateur.
	If the equipment is used in a manner other than that specified by Promega, the protection provided by the equipment may be impaired.	Si cet appareil est utilisé à d'autres fins que celles pour lesquelles il a été conçu, la protection fournit pourrait en être diminuée.
	Keep hands clear of shaking platform.	Eloignez les mains de la plateforme agitante.
	The internal surfaces of the tube holders may become hot. Do not touch.	Les surfaces internes des portoirs de tubes peuvent être chaudes. Ne pas toucher.

IMPORTANT SAFETY INSTRUCTIONS. SAVE THESE INSTRUCTIONS.

	To avoid muscle strain or back injury, use lifting aids and proper lifting techniques when removing or replacing the instrument. The HSM 3.0 Instrument weighs 17.6kg (38.8lb) and should be handled by two people. The packaged instrument weighs 30.5kg (67.3lb).	Pour éviter des claquages musculaires ou se faire mal au dos, utiliser du matériel permettant de soulever et des techniques de soulèvement correctes lors du retrait ou du repositionnement de l'appareil. Le HSM 3.0 Instrument pèse 17,6kg and doit être manipulé par deux personnes. L'appareil emballé pèse 30.5kg.
	Equipment can be hazardous due to the use of chemical and biohazardous substances.	L'appareil peut être dangereux dû à l'utilisation de substances chimiques ou dangereuses.
	Warning. Strong magnet. Can be harmful to pacemaker wearers.	Attention. Aimant puissant. Peut être dangereux pour des porteurs de pacemaker.
	Warning. Magnet may interfere with pacemakers and other devices. Pacemaker wearers stay back 30cm (12 in).	Attention. L'aimant peut avoir des effets sur les pacemakers et autres dispositifs. Les porteurs de pacemaker doivent rester à 30cm de l'appareil.

1.6 Environmental Requirements (Operation, Shipping and Storage Conditions)

Power Requirements: 100–240VAC, 50–60Hz

Temperature: 5–40°C

Humidity: Up to 80% relative humidity

Altitude: Height above sea level to 2,000m

The HSM 3.0 Instrument is intended for indoor use only. If liquid gets inside the instrument, it may damage the electronics. Install in a location that meets the following criteria:

- Install on a sturdy, dust-free, level surface.
- Choose a location that has good air circulation and is not exposed to direct sunlight.
- Avoid noisy electrical power sources (e.g., power generators).
- Do not install in a location where there is large temperature variability or high humidity.
- Position the instrument so that it is easy to unplug from the power source.
- Do not place the power supply in areas where it may come in contact with liquid.
- Do not place next to heat sources.
- Do not use near flammable gases or liquids.
- For optimal performance, equilibrate the instrument to room temperature before use.

2 Hardware Overview

Figure 4. Front of the HSM 3.0 Instrument showing LED informational lights. Green—power on/off; Yellow—user prompt; Red—error.

Figure 5. Rear of the HSM 3.0 Instrument showing connection for the blue instrument power cable and the RS-232 Cable port.

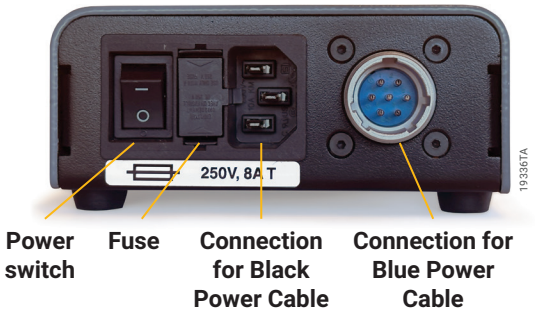


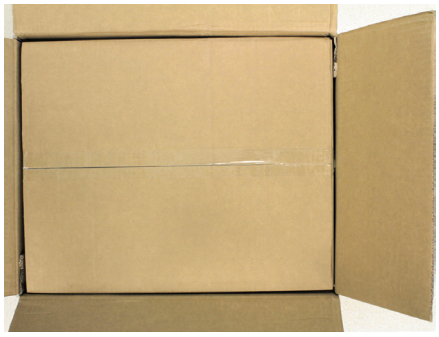
Figure 6. Rear of the Power Supply showing the main power switch, fuse and power connections.

3 Unpacking and Setting Up the HSM 3.0 Instrument

Important: Save all the packaging material (including the shipping pallet and wooden supports) in case the equipment needs to be returned for service or repair at a later date.

3.1 Instrument Setup

1. Remove the HSM 3.0 Instrument, Power Supply and accessories from the shipping containers.



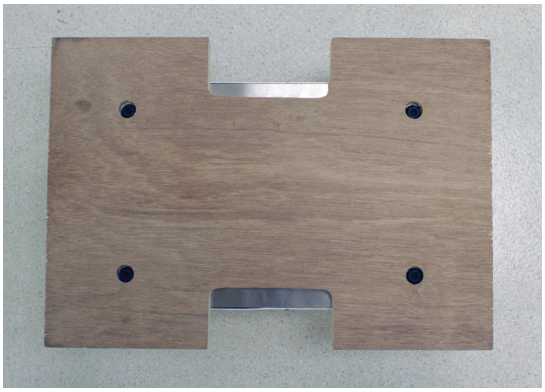
2. The instrument and accessories are supplied in corrugated packaging material. Open the main box and remove the upper box, which contains the instrument accessories and power supply (as shown in Figures 3 and 6).

3. Check that all parts have been included. Refer to Section 1.3 for a list of parts.

4. Remove the foam packaging material and carefully remove the box containing the HSM 3.0 Unit. Use caution when lifting the instrument. The instrument weighs approximately 38.8lb (17.6kg).

5. The HSM 3.0 unit is shipped affixed to a wooden support that needs to be removed prior to use.

6. Carefully place the unit upside down, revealing the four shipping screws, which can be removed with the supplied 6.0mm Hex Wrench.



7. After removal of the wooden support, screw the four feet provided into the holes on the bottom of the instrument.

   Note: Save the wooden supports in case the instrument needs to be returned for service at a later date.

8. Set the HSM 3.0 Instrument on a flat, level surface in a dust-free location with reasonable air circulation.
9. Ensure that the power switch is in the off position. The power switch is located on the back of the Power Supply (Figure 6).
10. Connect the HSM 3.0 Instrument to the Power Supply using the blue Power Cable by plugging the cable into the back of the instrument (Figure 5) and the back of the Power Supply (Figure 6).
11. The HSM 3.0 Instrument requires an external computer for operation, either a PC with HSM 3.0 Application Software installed or a PC controlling a liquid handler that has the appropriate software drivers installed. See Section 4 for software installation instructions. Driver installation is performed during automated method installation. Using the RS232 cable and USB to Serial Converter, attach the HSM 3.0 Instrument to the computer.

Important: Place the power supply in a dry location away from possible liquid spills.

12. Plug the black Power Cord into the back of the Power Supply (Figure 6). Plug the Power Cord into a grounded wall outlet. See Section 1.2 for power requirements.
13. Turn on the power switch located on the back of the Power Supply (Figure 6).
14. There are three LED lights on the front of the instrument. When the instrument is turned on, the Green LED will light up, indicating that the power is on. The instrument will then perform a self-diagnostics test that will take about one minute. During that time you will see and hear the instrument following the diagnostics routine. If an error is detected, the red LED will light up. If there is no red light, the instrument has passed its self-diagnostic test. A yellow light indicates that user action is required. The required action will be indicated by the HSM 3.0 Software.
15. Once all diagnostic checks have been passed, the HSM 3.0 Instrument is ready for operation.

    Note: If the instrument fails any of the diagnostic checks and the red LED light is illuminated, contact Promega Technical Services or your authorized service representative for assistance.

3.2 Instrument Shutdown

Turn off the power switch on the back of the Power Supply. Unplug the Power Supply from the electrical socket. Disconnect the HSM 3.0 Instrument from the Power Supply.

4 HSM 3.0 Application Software

The Promega HSM 3.0 Application Software provides the mechanism for users to interact with the HSM 3.0 Instrument for manual demonstration and manual purification purposes. Users will need to install the software on a PC or tablet that meets the following minimum requirements:

Windows® PC

Processor 1 GHz

RAM 512 MB

Minimum disk space (32-bit) 4.5 GB

Minimum disk space (64-bit) 4.5 GB

Supported operating systems (32-bit or 64-bit):

Microsoft Windows® 10 Pro

Microsoft Windows® 10 Enterprise

Microsoft Windows® 11 Pro

Microsoft Windows® 11 Enterprise

This software enables users to process HSM 3.0-compatible chemistries, edit or create methods, access the instrument settings and export reports of service and purification activities. This document describes the features and usage of the Promega HSM 3.0 Application Software.

By default, the HSM 3.0 program supports minimize, maximize, and close functions while maintaining a consistent ratio according to the OS screen resolution.

4.1 Software Installation

Complete the following steps to install the Promega HSM 3.0 Application Software:

1. Log on to Windows® Administrator privileges are required to install the software.

   Note: Consult with your organization IT regarding third party software installation guidelines prior to installing the HSM 3.0 Application Software.

2. Disable any automatic virus detection programs before installation. Some virus detection programs may interfere with installation.
3. Download the software installer from:
   https://www.promega.com/resources/software-firmware/
4. Save the file to a local file storage location.
5. Double-click on **Setup.exe** to open the installer program.
6. Follow the on-screen instructions to install the Promega HSM 3.0 Application software.
7. The installer will guide you through the installation process. During installation you will be asked whether the software should be installed for a specific user or for everyone. Choose “everyone” so that all users will have access to the software.
8. Upon successful installation, the screen shown in Figure 7 will be displayed. The software is now installed and ready for use.

   Note: If you are unable to install the software, contact your IT Department.

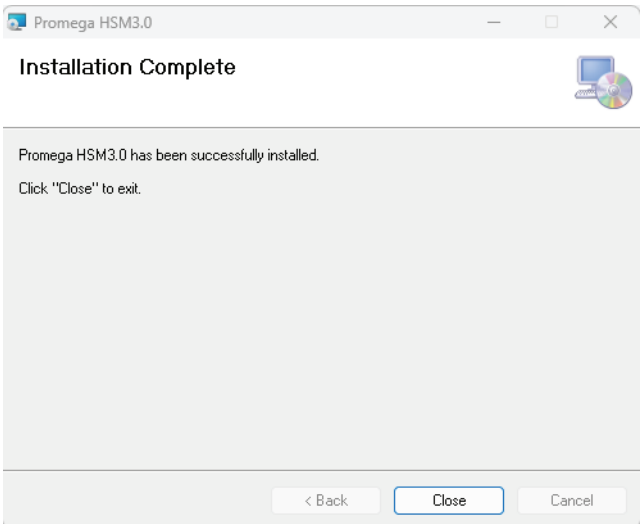


Figure 7. Successful software installation screen.

4.2 Access Levels, Log In and Main Menu Screens

The Promega HSM 3.0 Application software allows access to certain functions within the software by a login mechanism with user and administrator access levels. There are three levels of access: User, Administrator and Promega Service. The Main Menu will differ based on the access level of the currently logged in user (Figure 9).

4.2.1 Login

Users must login to the software to run protocols.

When a user launches the HSM 3.0 program, Figure 8 shows the Log In screen. After entering the Name and Password, the user can access the Home screen by selecting the **Log In** button (Figure 8). Notably, there are three levels of access for the software, and the available features are restricted based on the user's permission level.

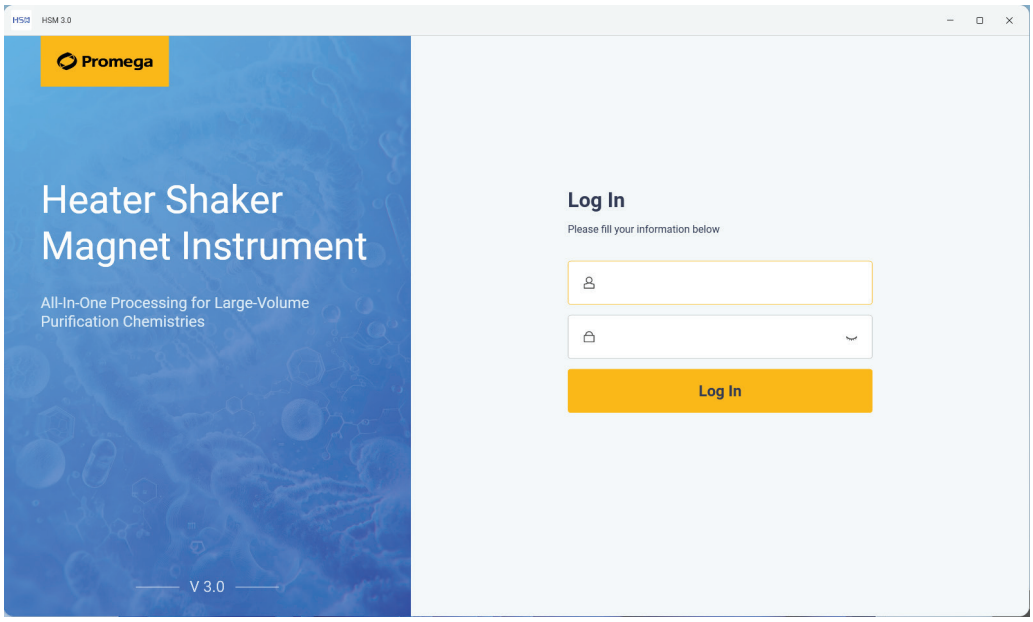


Figure 8. The 'Log In' screen.

Contact Promega Technical Services for login information to an administrator account and assistance (**techserv@promega.com**). If you have forgotten your password, a user with administrative rights can reset your password. If you have forgotten your administrative password, contact Promega Technical Services for assistance.

4.2.2 Home Screen

The Home screen features are based on the logged-in account's permissions as follows.

User: User-level permissions allow for running protocols and accessing Instrument Management (Figure 9, Panel A).

Administrator & Service: On the Home screen, if all functions are available, both of these permissions have the same access, allowing user to access all features (Figure 9, Panel B).

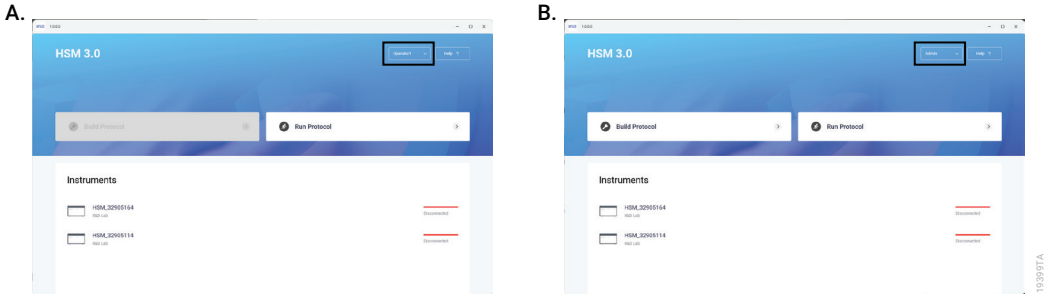


Figure 9. Main screen for User and Admin permission levels.

When a user selects the first button (**Admin)** in the upper right corner of the Home screen, a tab list related to Manage appears. The user can navigate to the desired screen by selecting one of the tabs from the list.

When the user selects the second button (**Help**) in the upper right corner of the Home screen, the help document pops up.

When the user selects the **Build Protocol** button, it navigates to the Build Protocol screen.

When the user selects the **Run Protocol** button, it navigates to the Run Protocol screen.

In Figure 10, the Instruments section at the bottom of the screen displays a list of registered devices and shows their status in real time. Selectable areas are predefined, and the screen the user is directed to depends on the color of the bar to the right of the device.

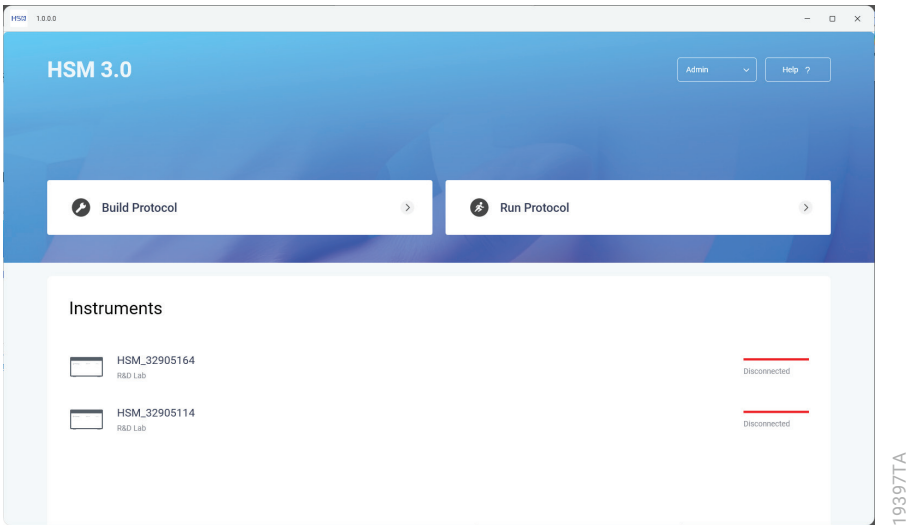


Figure 10. Home screen showing the registered Instruments section.

Only the instrument icons and the “HSM_xxxxxxxx” label are selectable areas. When selected, they lead to the following screens:

Orange bar	Appears when the instrument is in operation. Selecting it will navigate to the 'Run Protocol' screen. Additionally, the Remaining Time is displayed on the right side, and an arrow button appears. Selecting the arrow button also takes user to the 'Run Protocol' screen.
Red bar	Appears when the registered instrument is either not connected to the PC or tablet, or when there is a malfunction with the instrument. Selecting it navigates to the Instruments screen, where user can view errors related to abnormal operations.
No bar	When no bar is displayed, selecting will navigate to the 'Instruments' screen, just like with the red bar.

The data of registered instruments will be retained unless the HSM 3.0.exe program is uninstalled. While you can register more than three instruments, three is the maximum number of instruments that can be operated independently at the same time.

4.2.3 Main Menu

The main menu is the launching pad for interaction with the functionalities built into the HSM 3.0 Application Software.

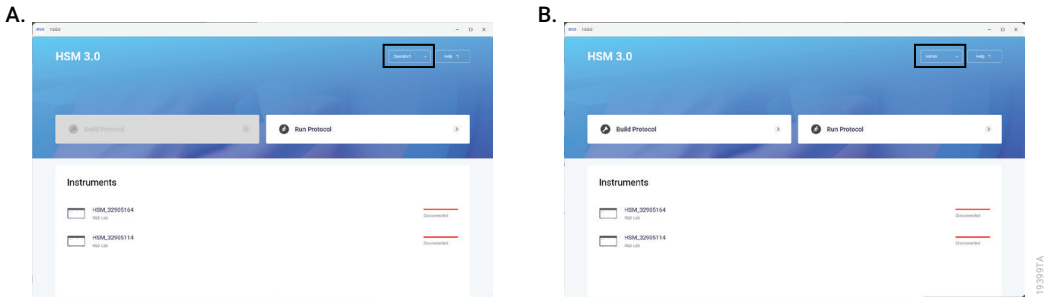


Figure 11. Main menu screens for different access levels. Panel A. User access level menu displays the Start Protocol and Generate Reports options. **Panel B.** Administrator access level menu displays Start Protocol, Generate Reports, and Configure Settings options.

4.3 Build Protocol

When user selects the **Build Protocol** button on the 'Home' screen, a screen appears as shown in Figure 12 with a choice of My Protocol and Promega Protocol. Selecting the **Back** button will return user to the Home screen.

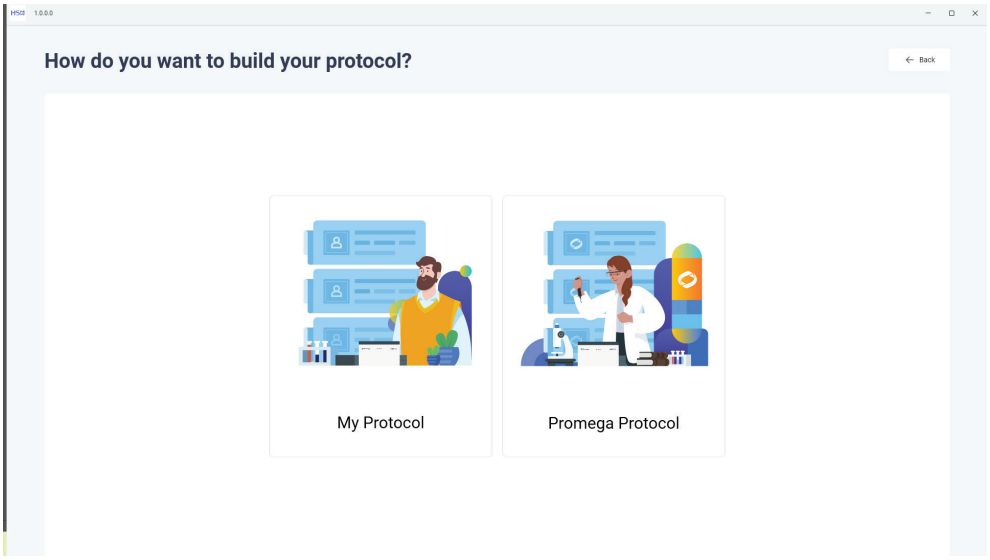


Figure 12. 'Protocol Selection' screen.

4.3.1 'My Protocol' Screen

The 'My Protocol' screen has two tabs, with the 'Existing Protocols' tab as the default screen.

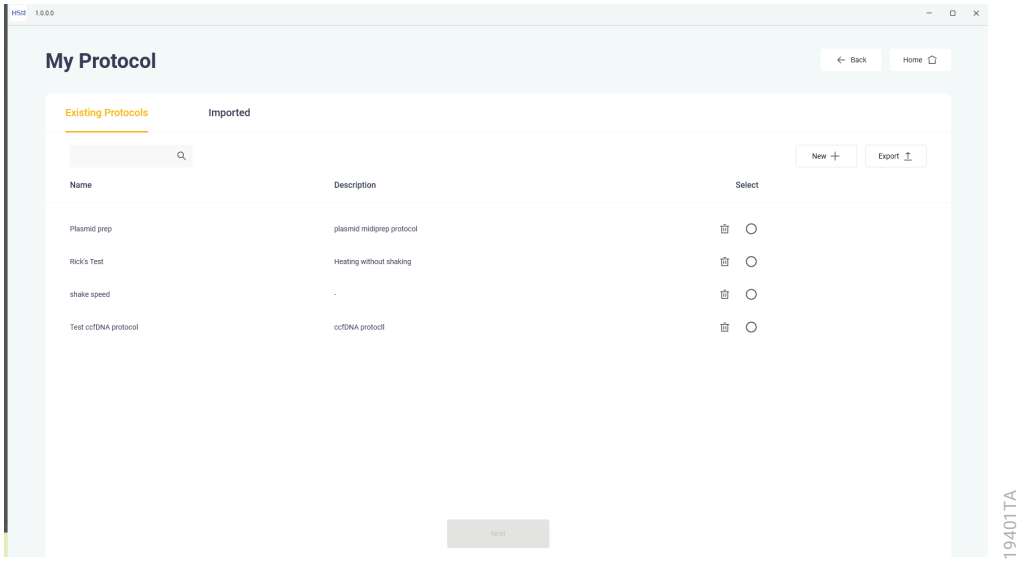


Figure 13. 'Existing Protocols' tab in the 'My Protocol' screen.

4.3.2 Existing Protocols

The 'Existing Protocols' tab, shown in Figure 13, is composed of the following elements.

Search input field	Enter the name of the protocol to find it.
New button	Create a new protocol. Selecting this button will navigate to the 'Build Protocol' screen.
Export button	Transfer the saved protocol file (.nspx) to an external storage device. This enables sharing of the created protocol file (.nspx) between different PCs and instruments.
Select button	The list at the bottom displays protocol file information based on Name, Description and Select. Execute a protocol by selecting this button.
Delete button	Delete a protocol file using this button.

4.3.3 Imported Protocols

'Imported' Tab in My Protocol

The 'Imported' tab, shown in Figure 14, has a similar layout to the 'Existing Protocols' tab but includes an **Import** button. This button allows user to load protocol files (.nspx) from an external storage device.

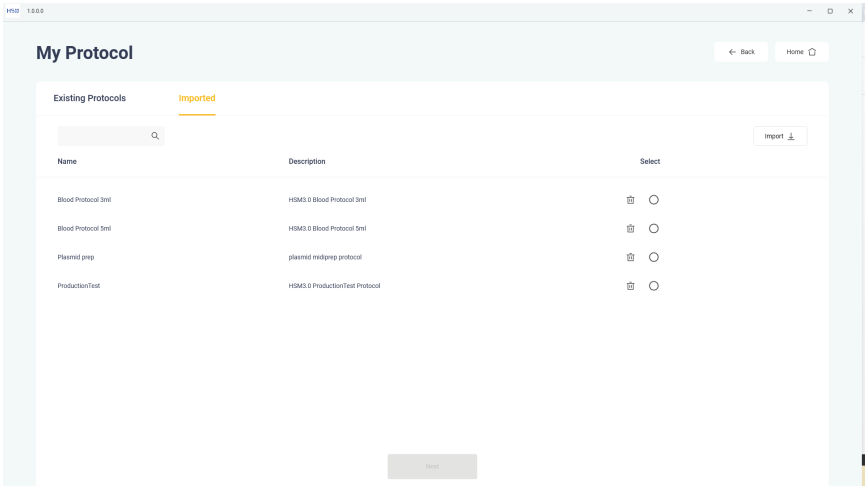


Figure 14. 'Imported' Tab in My Protocol.

4.3.4 'Promega Protocol' Screen

The 'Promega Protocol' screen has a layout similar to the 'Imported' tab on the 'My Protocol' screen. However, the presence of the **New** button varies depending on the account's permissions, as shown in Figure 15.

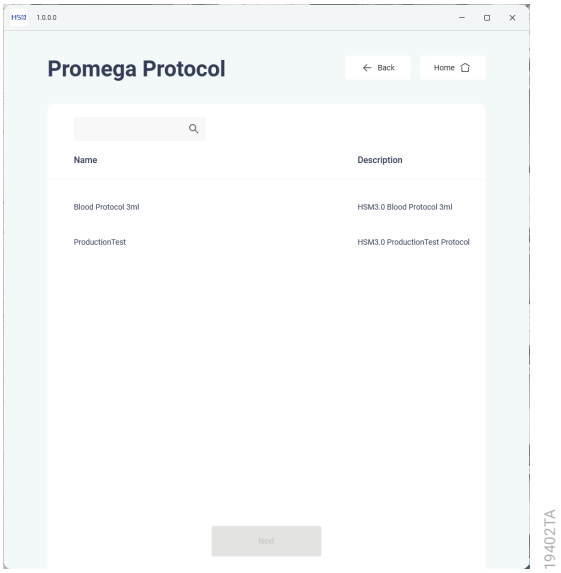


Figure 15. 'Promega Protocol' screen.

This screen can be accessed through Home → Build Protocol, but persons with User-level permissions cannot access the Build Protocol.

4.3.5 'Create New Protocol' Screen

When selected, the **New** button navigates to a screen where user can enter the protocol name, as shown in the image below.

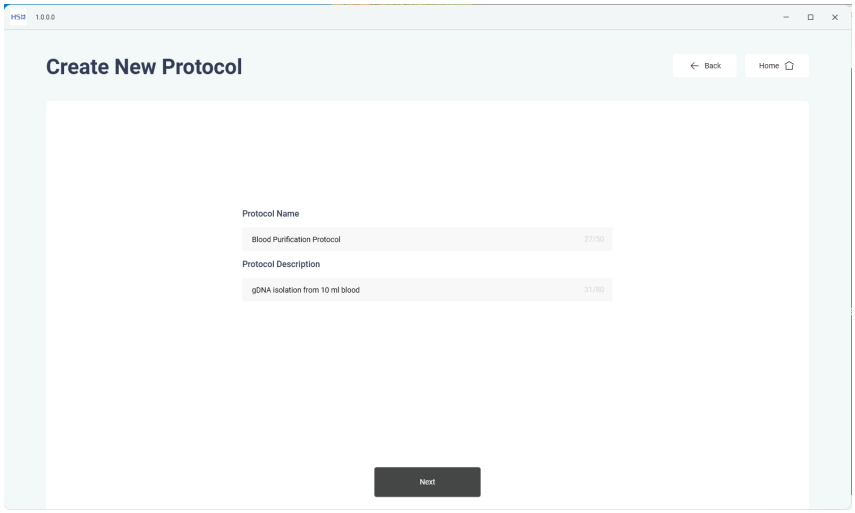


Figure 16. 'Create New Protocol' screen.

4.3.6 'Build Protocol' Screen

After entering the protocol name, the user will be directed to a screen where they can create individual tasks to build the protocol.

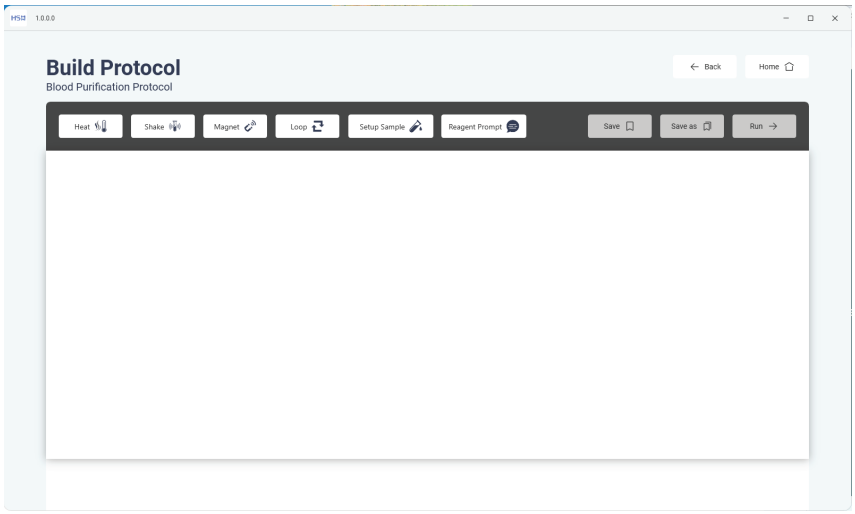


Figure 17. 'Build Protocol' screen.

The descriptions for each task are as follows.

Heat Task

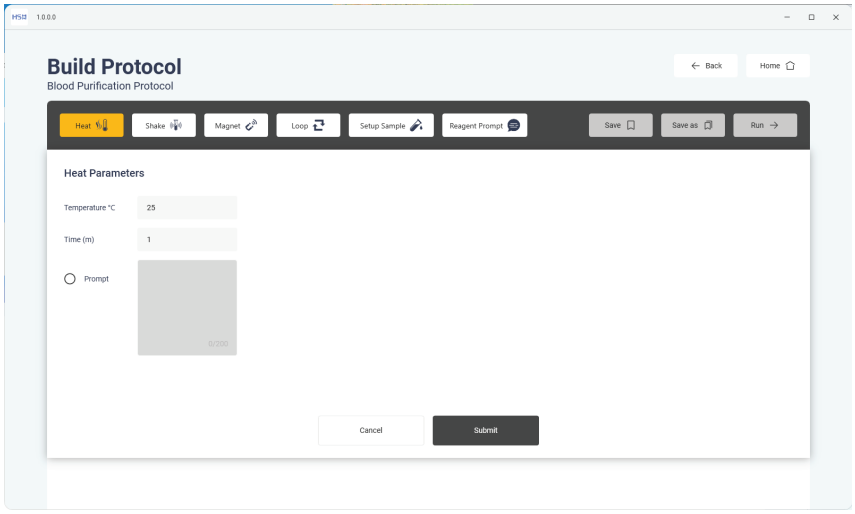


Figure 18. Heat Task in the 'Build Protocol' screen.

The parameter configuration for the Heat Task, as shown in Figure 18, is as follows.

Temperature	The default range is 25–80°C. If a value below 25°C is entered, it will automatically be set to 25°C. Similarly, if a value exceeding 80°C is entered, it will be set to 80°C.
Time	The unit is minutes, with the default value set to 1 minute.
Prompt	The default setting is Off, but it can be switched to On. In this mode, user can enter a description for the task.

If user does not enter values for all task parameters and selects **Submit** (Figure 18), the default values will be applied.

Shake Task

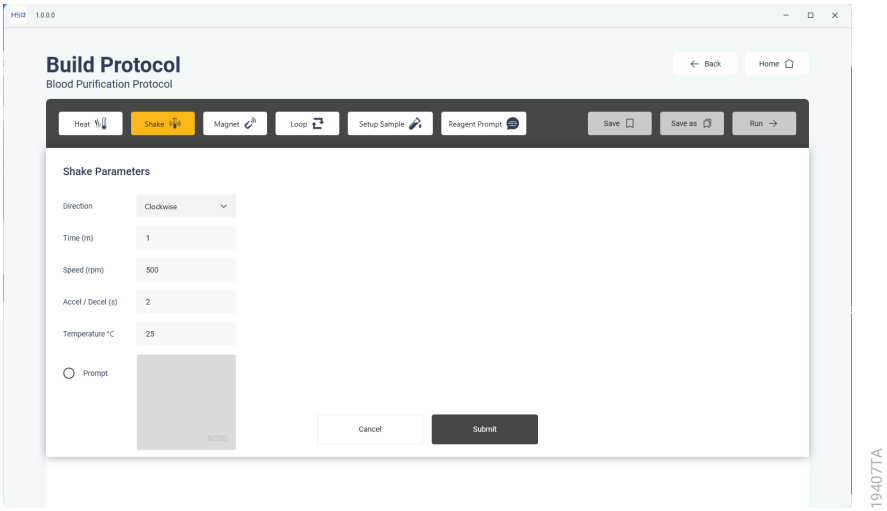


Figure 19. Shake Task in the 'Build Protocol' screen.

The parameter configuration for the Shake Task, as shown in Figure 19, is as follows.

Mode	Details
Direction	Allows the user to choose between Clockwise and Counter Clockwise shaking direction.
Time	The unit is in minutes, with the default value set to 1 minute.
Speed	The unit is in RPM, with a minimum value of 100 and a maximum value of 900. If a user enters a value below the minimum or above the maximum, it will automatically be set to 100 or 900, respectively.
Accel/Decel	The unit is in seconds, with values ranging from 2–10 seconds. With heavier loads when using the low volume adapter, a slower acceleration speed will be required.
Temperature	The default setting range is 25–80°C. If user enters a value below 25°C, it will automatically be set to 25°C. Similarly, if a value above 80°C is entered, it will be set to 80°C.
Prompt	A method can include a prompt with user instructions for a step. The prompt pauses the method until the user acknowledges that they have completed the task (such as remove supernatant after capturing the particles). The default setting is Off, but it can be switched to On. In this mode, user can enter a description for the task.

Note: Take care to avoid spilling liquid when programming shake speeds. See Table 1 and Section 7 for guidance on shake speeds based on the volume of liquid in a tube. If in doubt, start with 300rpm and adjust based on performance and observation of how the liquid in the tube responds.

Magnet Task

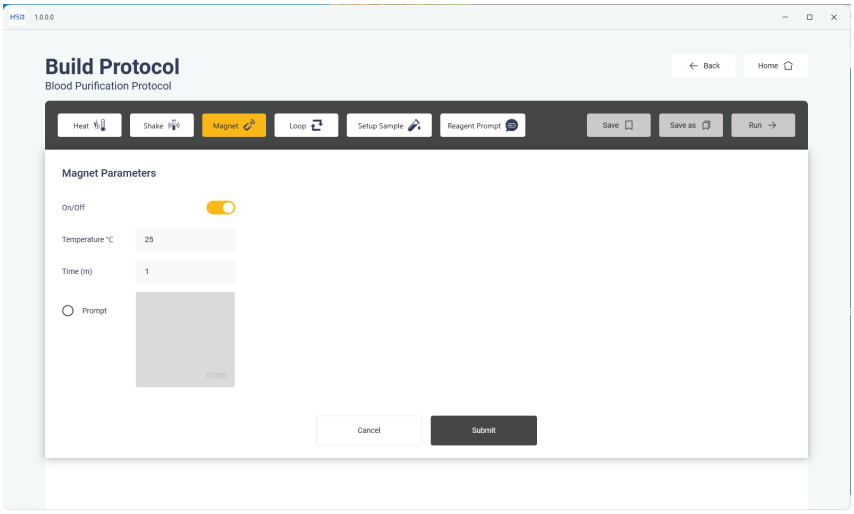


Figure 20. Magnet Task in the 'Build Protocol' screen.

The parameter configuration for the Magnet Task, as shown in Figure 20, is as follows:

On/Off	The operation of the magnet can be controlled using the **On/Off** button.
Temperature	The default setting range is 25–80°C. If user enters a value below 25°C, it will automatically be set to 25°C. Similarly, if a value above 80°C is entered, it will be set to 80°C.
Time	The unit is in minutes, with the default value set to 1 minute.
Prompt	The prompt pauses the method until the user acknowledges that they have completed the task (such as remove supernatant after capturing the particles). The default setting is Off, but it can be switched to On. In this mode, user can enter a description for the task.

Loop Task

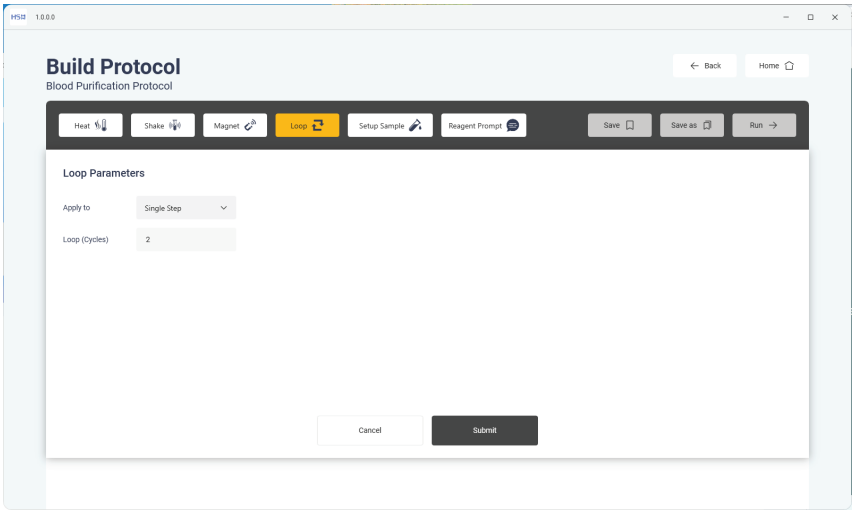


Figure 21. Loop Task (Single Step) in the 'Build Protocol' screen.

The parameter configuration for the Loop Task, as shown in Figure 21, is as follows:

Apply to	This is a tab configuration with options for Single Step, Multiple Step → Start, and Multiple Step → End. When Multiple Step → End is selected, the Loop (Cycles) input field in Loop (Cycles) disappears. • Single Step refers to the number of repetitions within a single task that can be submitted at once. • Multiple Step allows user to set Start and End points within the submitted task list to define a range of tasks that will be repeated (for example if three identical wash steps are needed, they can be created as one set of tasks that loop three times).
Loop (cycles)	Refers to the number of repetitions, with the default value set to two cycles. Multiple Step → End can only be created after Multiple Step → Start has been submitted. If user tries to submit Multiple Step → End without a preceding Multiple Step → Start, an error message will be displayed.

Setup Sample and Reagent Prompt Tasks

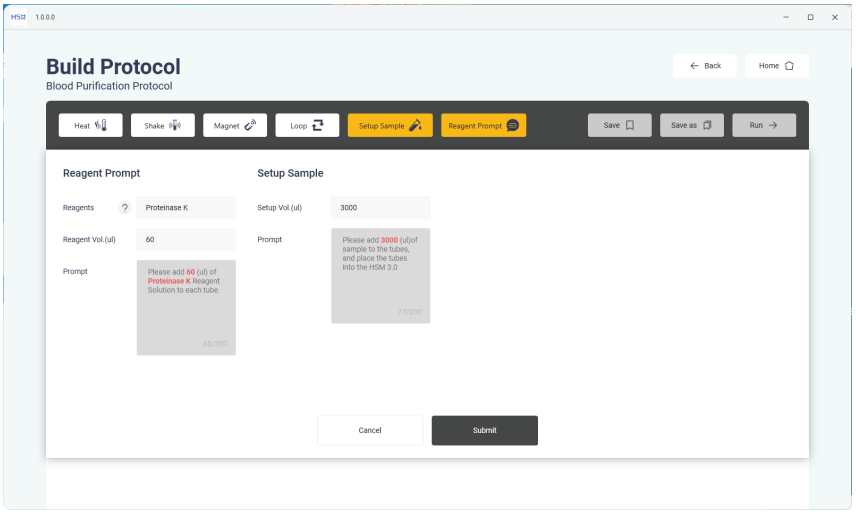


Figure 22. Setup Sample and Reagent Prompt Tasks in the 'Build Protocol' screen.

The parameter configuration for the Setup Sample Task, as shown in Figure 22, is as follows.

Sample Vol. (µl)	Specifies the volume of the sample to be analyzed in microliters.
Prompt	Unlike the prompt in other tasks, this one is always On without an On/Off option. The red numeric value in the prompt automatically adjusts based on the volume entered in Sample Vol. (µl). The prompt pauses the method until the user acknowledges that they have completed the task.

The parameter configuration for the Reagent Prompt Task, as shown in Figure 22 is as follows.

Reagents	Enter the reagent name.
Reagent Vol. (µl)	Unlike the prompt in other tasks, this one is always On without an On/Off option. The red numeric value in the prompt automatically adjusts based on the reagent type selected under Reagents and the volume entered in Reagents Vol. The prompt pauses the method until the user acknowledges that they have completed the task.

Completed Built Protocol

The image of a completed protocol after submitting the above tasks is shown in Figure 23.

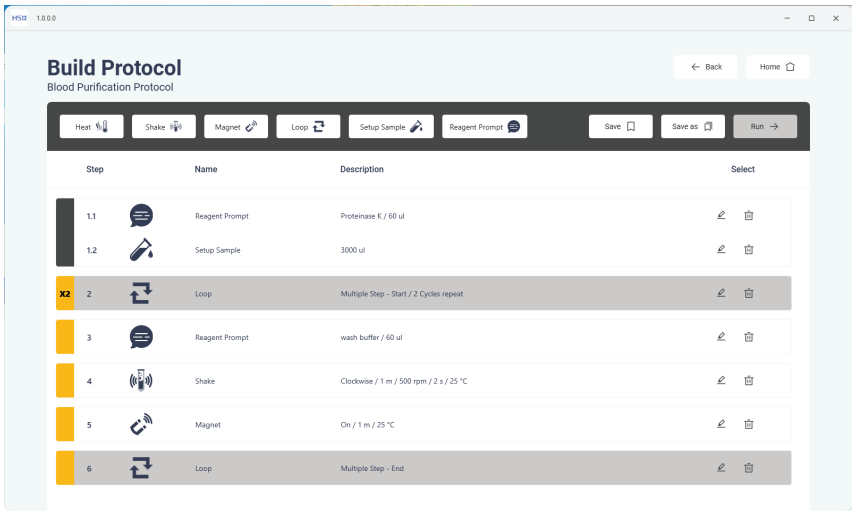


Figure 23. Example of a Built (Completed) Protocol.

4.4 Running a Protocol

1. Turn the HSM 3.0 Instrument power to **On** prior to launching the software.

   If the instrument is not recognized as connected, disconnect and reconnect the communication cable. The instrument power switch is located on the back of the power supply (Figure 6.)

2. Start a protocol by selecting the **Start Protocol** button on the Main Menu.

   Note: The preprogrammed methods supplied with the HSM 3.0 Instrument can be used to purify nucleic acids from defined sample types. Sample preparation and handling is described in the relevant reagent kit manual.

3. Select **Run protocol**. The 'Protocol Selection' window (Figure 24) will open. 'Promega Protocols' and 'My Protocols' (created by an Admin) are provided in two tabs. Select the appropriate tab and select the method desired.

4.4.1 'Promega Protocols' Tab

The 'Promega Protocols' tab in Figure 24 allows the user to select protocols provided by Promega.

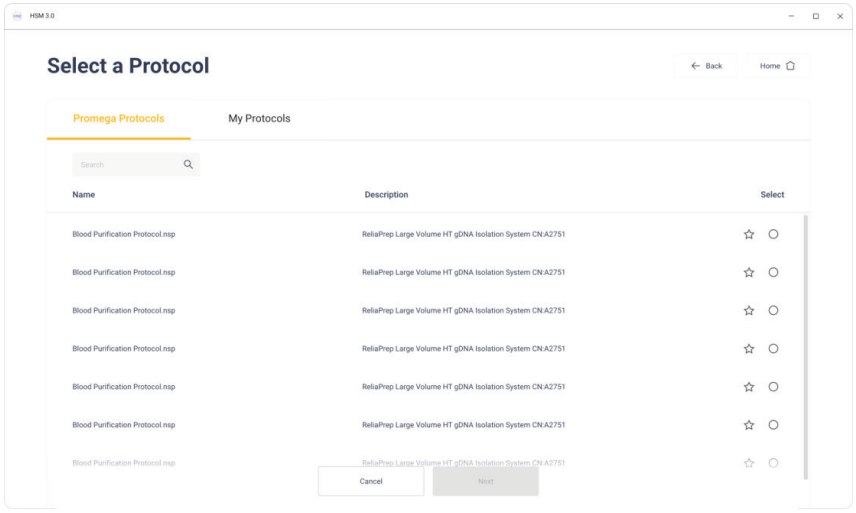


Figure 24. The 'Promega Protocols' Tab on the 'Select a Protocol' Screen.

The 'Promega Protocols' tab, shown in Figure 24, is composed of the following elements:

- In the Search input field, enter the name of the protocol you are looking for.
- Activate the **Favorites** feature for a protocol using the **star** button
- The list at the bottom displays protocol file information according to Name, Description and Select. User can select only one protocol at a time by selecting the **Select** button.

4.4.2 'My Protocols' Tab

The 'My Protocols' tab in Figure 25 displays a list of custom protocols created by the user, allowing them to select from these options.

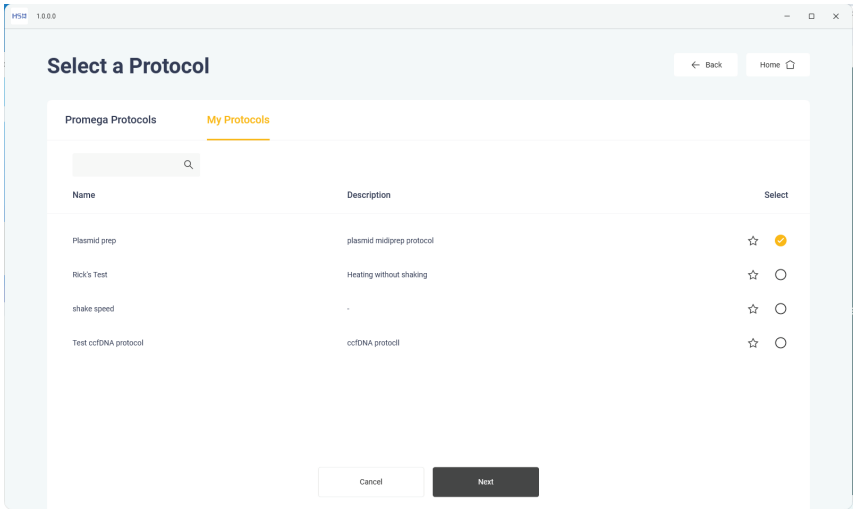


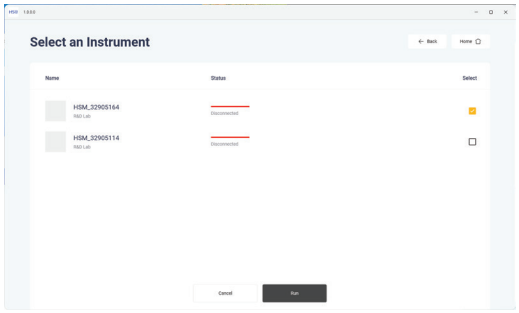
Figure 25. The 'My Protocols' tab on the 'Select a Protocol' screen.

The 'My Protocols' tab is similar in structure to the 'Promega Protocols' tab but includes an **Import** button. This button allows user to load and save protocol files (.nspx) from an external storage device.

4.5 'Select an Instrument' Screen

This screen allows the user to select the instrument to run the previously chosen protocol. Depending on the account's permissions, a **Demo Mode Toggle** button (Demo On/Off) may be present. Demo Mode does not operate the instrument but instead allows the user to review the steps of each task within the selected protocol.

A.



B.

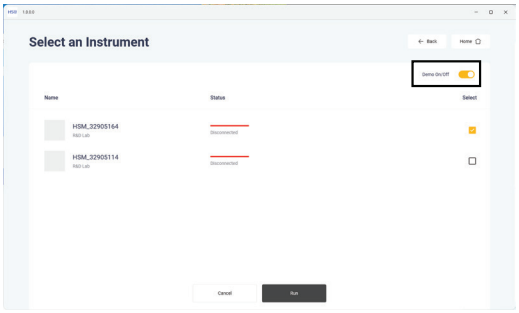


Figure 26. The 'Select an Instrument' screen. Permission user **(Panel A).** Permission Administrator **(Panel B)**. Admin users can access Demo mode.

4.5.1 Normal Mode and Run Protocols

If the account has User-level permissions or if the **Demo Mode Toggle** button is off, the instrument will operate according to the tasks within the protocol. On this screen, user can select up to three instruments to run the same protocol simultaneously.

Figure 27 shows the 'Run Protocols' screen when three different protocols are being run on three separate instruments.

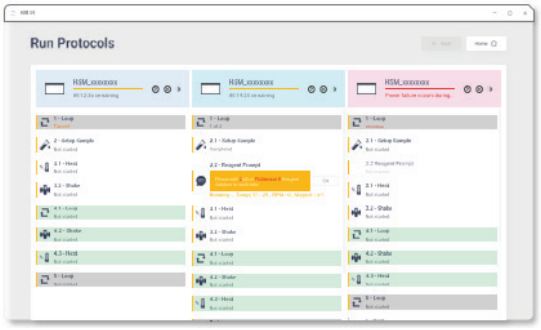


Figure 27. The 'Run Protocols' screen.

The 'Run Protocols' screen, shown in Figure 27, is composed of the following elements.

1. The User can check and control the instrument's status, view the instrument name, see the remaining time, and monitor any basic errors.The status bar includes: in progress (green), pause (yellow), completed (green) and error (red) colors.

▶	**Run and Pause buttons:** The **Run** button (shown) controls the start and stop functions for task execution. It switches between Run and Pause depending on the current state. If the protocol is running, the **Pause** button is visible. In the Pause state, the remaining time stops counting. (Remaining time refers to the total time required for the Heat, Shake and Magnet tasks in the selected protocol.)
✕	**Stop button:** Pressing this button while a task is in progress will stop and cancel the entire protocol, resetting the instrument to a "Completed" state.
▶	**Start button:** Functions the same as the **Run** button.

2. Displays the task steps of the built protocol, with the following task operation statuses:
    - Not started
    - Completed
    - Running
    - Attention

Each task has different parameters set, and certain parameters trigger interactive events on the 'Run Protocols' screen. For example the Reagent Prompt Task always has the Prompt set to “On”, and it displays an **OK** button on the 'Run Protocols' screen for user interaction.

- **Loop - Multiple Step:** The Start/End of a Multiple Step Loop has a gray background, distinguishing it from other tasks. Additionally, user can see which Loop cycle is currently in progress during task operation. Among the task steps, those affected by the Loop – Multiple Step have a yellow header color, while tasks not influenced by the Loop have a gray header.
- **Loop – Single Step:** Because the Single Step Loop repeats tasks submitted at once, tasks under this loop are marked in green, as shown in the image below. Like the Multiple Step Loop, user can also see which Loop cycle is currently in progress.
- **Heat & Shake & Magnet Prompt On/Off:** The Heat, Shake and Magnet tasks can have the Prompt set to either "On" or "Off" when building the task. If the Prompt is "On" for these tasks, the **OK** button is initially disabled when the task begins. Once the task is completed, the **OK** button becomes active, and user must select it to proceed to the next step.

Figure 28. Example of a protocol with loop steps.

4.5.2 Demo Mode and Run Protocols

When the account has Administrator or Service permissions and the **Demo Mode Toggle** button is on, user can access Demo Mode. In this mode, the instrument does not actually operate; instead, it allows user to verify whether the tasks in the built protocol execute sequentially as intended.

The cases in which Demo Mode can be activated to select an instrument are as follows.

- When the status of a registered instrument is "Available" (i.e., the instrument is not currently in operation).
- When the status of a registered instrument is "Attention".

On the 'Select an Instrument' screen, apart from the two cases mentioned above, instruments in other states cannot be selected or viewed.

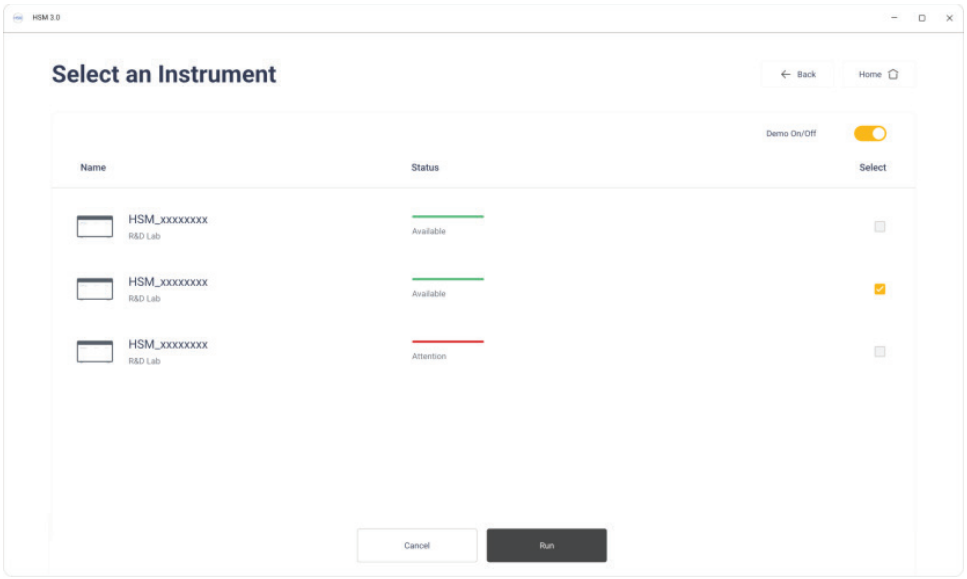


Figure 29. Example of the 'Select an Instrument' screen.

If the software is started before the instrument(s) are powered on, they will appear as unavailable Instruments that appear to be disconnected from the PC.

To solve this issue, turn on the HSM prior to opening the software or disconnect the USB and reconnect the HSM to the computer.

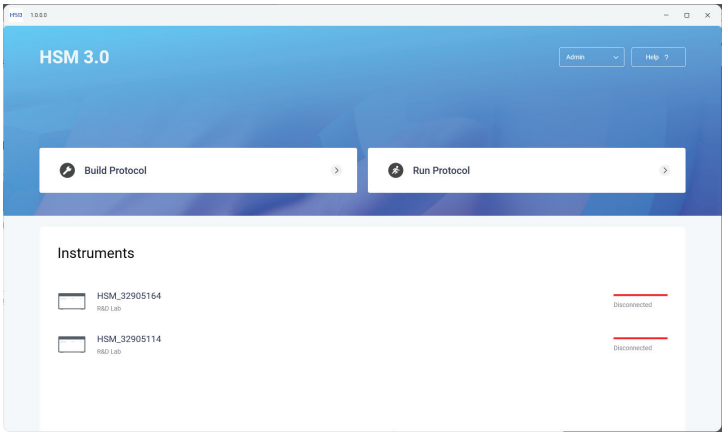


Figure 30. Instruments showing connectivity to the software after launching the HSM 3.0 Software.

Figure 31 shows the screen when one instrument is selected, and Demo Mode is activated.

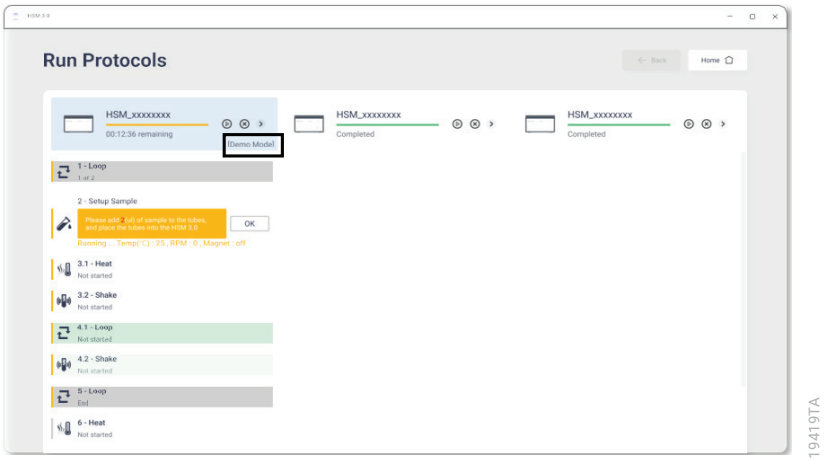


Figure 31. Demo Mode in operation.

When a protocol is run in Demo Mode, the user can identify that Demo Mode is active by the presence of the term [Demo Mode] beneath the start and stop buttons (Figure 31). Figure 32 is an example of the screen after Demo Mode has finished.

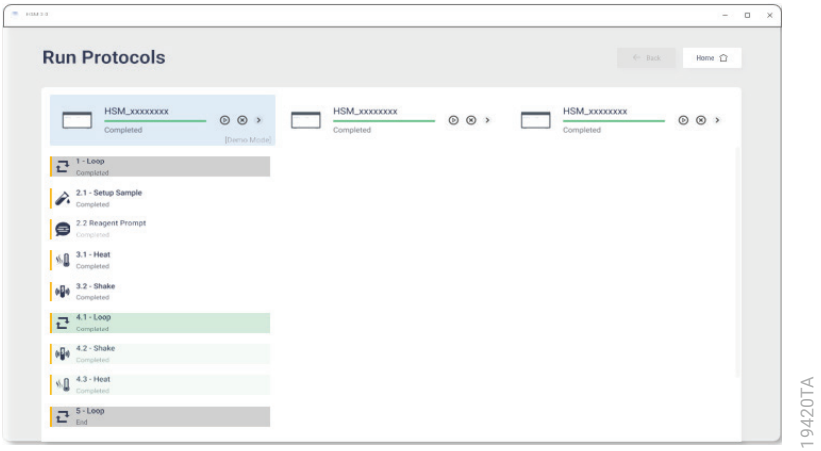


Figure 32. Completed Demo Mode.

4.6 Instruments

In Figure 33, the Instruments section at the bottom displays a list of registered equipment and shows their real-time status. Earlier it was explained that the screens the user can navigate to differ depending on the status indicators shown in the top right corner of the Instrument diagram.

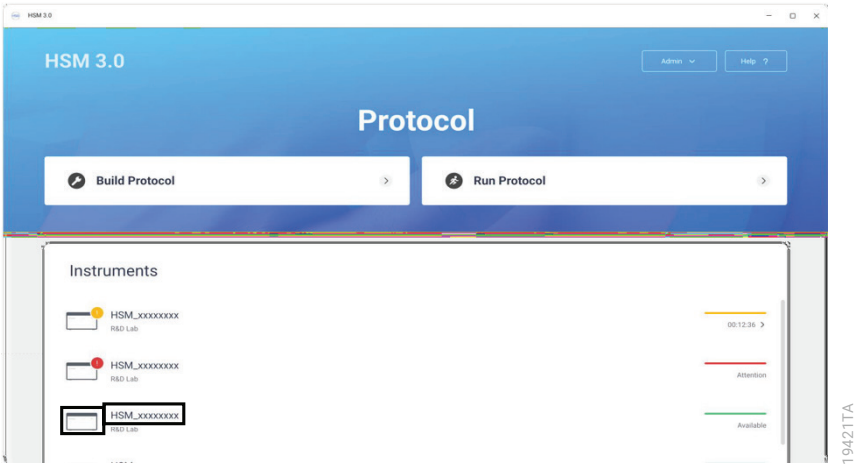


Figure 33. View of the 'Home' screen with registered Instruments.

Only the equipment image (Figure 33) and the name “HSM_xxxxxxxx” are selectable. If the user selects an Instrument with a red mark (Figure 33) or no mark, it will take them to the 'Instruments' screen (Figure 34). Once there, the 'Instruments' screen is divided into the 'Run Reports' and the 'Log Files' tabs.

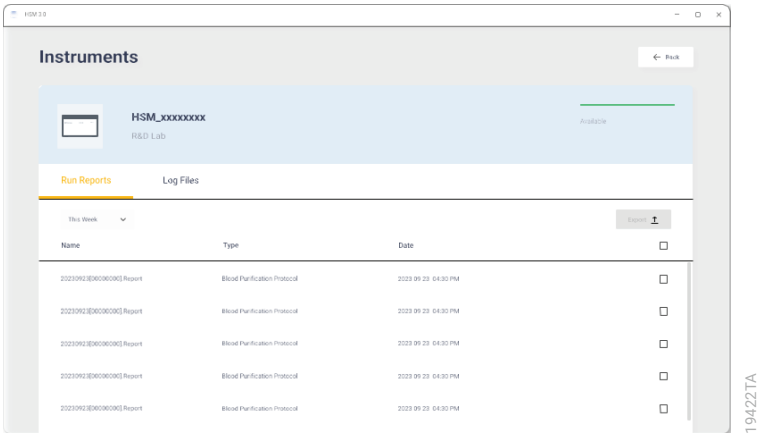


Figure 34. The 'Instruments' screen.

The layout of the 'Instruments' screen is shown in Figure 34 and is as follows:

Header	This section displays information about the equipment name, location, and status. If there is an issue with the equipment, a brief log of the problem will be shown here.
Tabs	This section is divided into 'Run Reports' and 'Log Files' tabs, allowing the user to manage records for both reports and logs. The desired reports or logs can be arranged by recorded date and saved to an external storage device using the **Export** button. The **Delete** button is available to the left of the **Export** button only when the account has Service-level permissions.

4.7 'Run Reports' Tab

The Instruments screen initially displays the 'Run Reports' tab, where the user can select and review the records of protocols that were run on the respective instrument. The Report list consists of Name, Type and Date. By selecting on the Name of a report in the list, the user can view the report, as shown in Figure 35 and print it using the **Print** button.

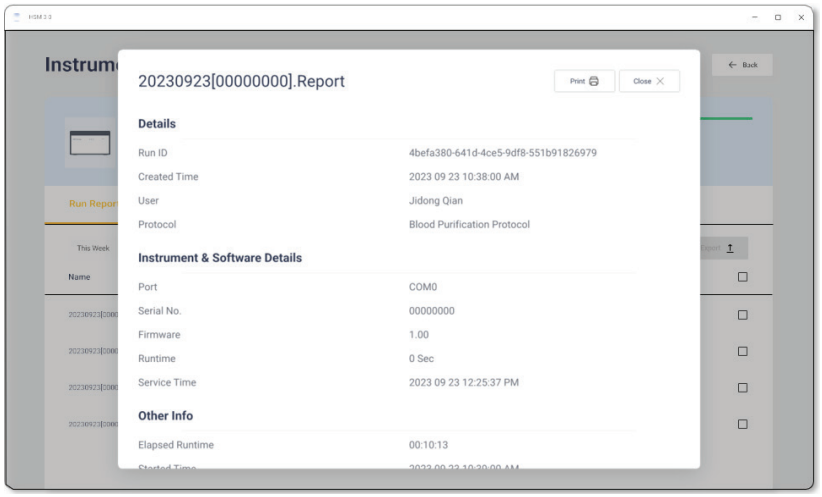


Figure 35. Example of a run report.

4.8 'Log Files' Tab

By selecting the 'Log Files' tab, the user can view the logged values for the respective instrument. The Log List is composed of Date and Content. Similar to reports, if the user selects on the Date in the Log List, they can view the corresponding log.

In Figure 36, when the account has Service-level permissions, the **Delete** button is visible. However, this button does not appear for User and Administrator accounts.

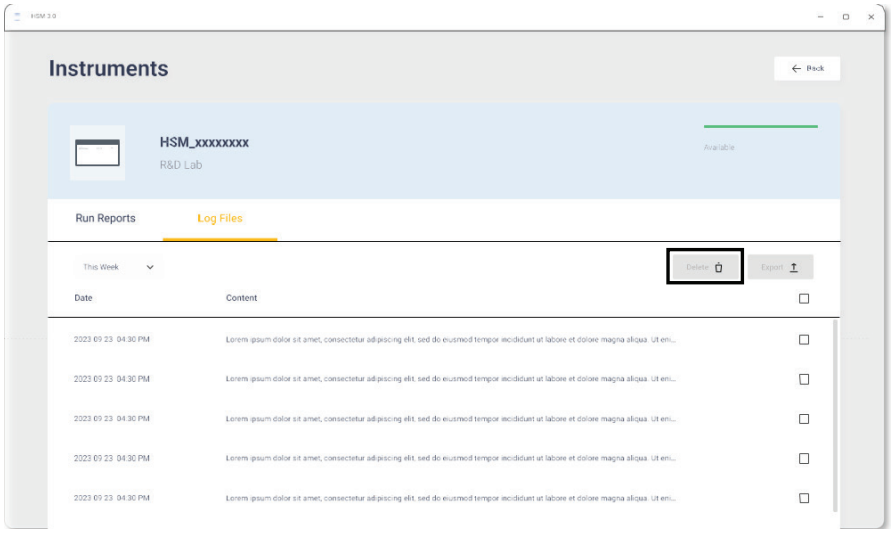


Figure 36. The 'Log Files' tab in the 'Instruments' screen.

4.9 'Manage Instruments' Tab

In the 'Home' screen, when the user selects the button displaying the account name in the top right corner, “Manage” refers to all the options listed except for Log Out. It consists of four tabs: Setting, Manage Users, Manage Instruments and Service. The account’s current permission level is displayed in the top left corner of each tab. The features available differ based on the account’s permission level as outlined below:

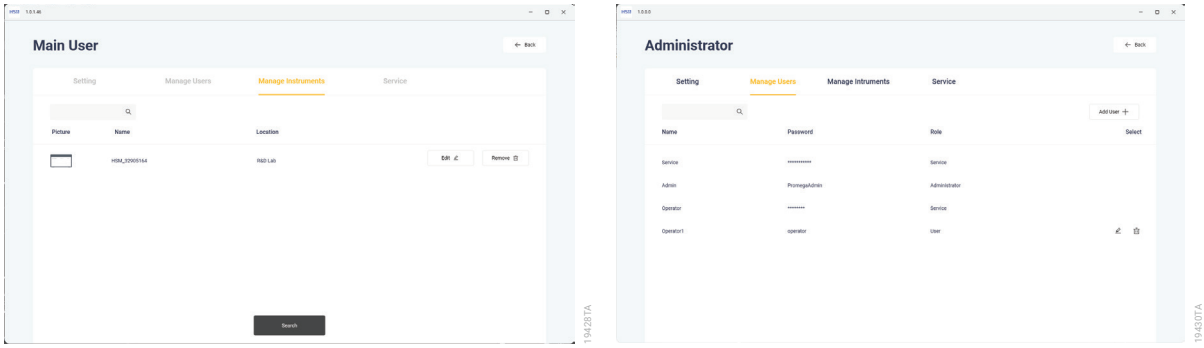


Figure 37. User (left) and Administrator and Service (right) accounts.

The User account can only access the 'Manage Instruments' tab, and the functionality within this tab is the same regardless of the account type.

4.10 'Setting' Tab

The 'Setting' tab is accessible only to Administrator and Service accounts. In this tab, the user can change the currently logged-in ID and Password. Additionally, the user can define and modify the File Path for the **Export** button (Report, Log) mentioned earlier. The Countdown Timer feature allows the user to set notifications for the time just before each step of the Instrument process is completed.

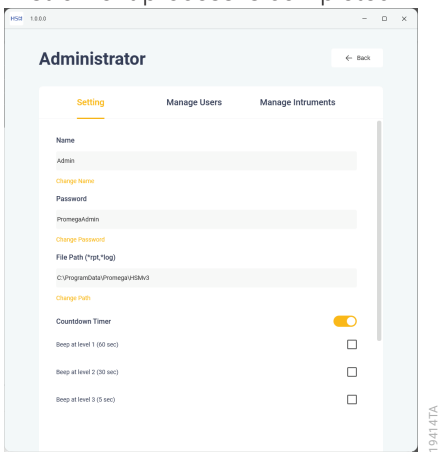


Figure 38. 'Setting' tab on the 'Administrator' screen.

By selecting the text highlighted in orange, the user can change the value of an item. If the file path is selected, a file explorer will open, enabling the user to set the folder path as shown in the image below.

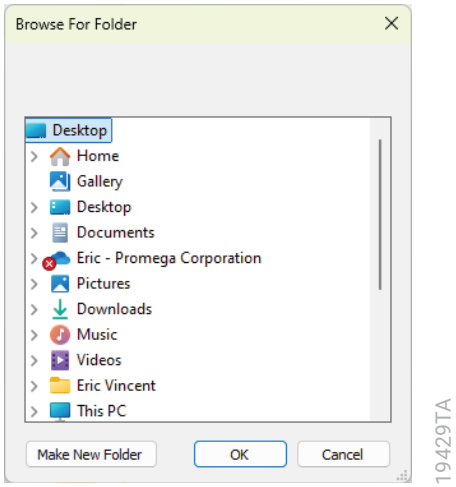


Figure 39. Saving a file.

4.11 'Manage Users' Tab

The 'Manage Users' tab is also accessible only to Administrator and Service accounts and allows for the management of all accounts used for HSM 3.0 Log In. However, if logged in as an Administrator, the user can only delete or edit User accounts, which have a lower permission level than Administrator. If logged in as a Service account, the user has the ability to delete or edit all accounts.

To edit one of the accounts in the account list, the user can select the **Edit** button and make changes as shown in Figure 40.

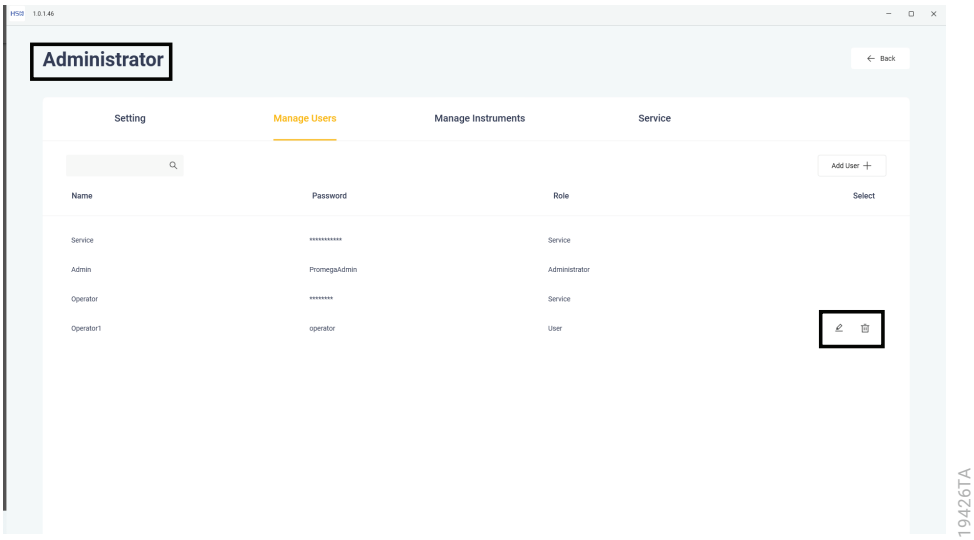


Figure 40. Example of editing users.

The list of permissions available for updating a role also varies depending on the logged-in account, as detailed below. Administrators can edit names, passwords and roles of User-defined users. An operator cannot edit any settings.

4.12 'Manage Instruments' Tab

The 'Manage Instruments' tab enables management of Instruments with the same functionality across all account permissions. This tab serves as the screen where users can register equipment for the Instruments List at the bottom of the 'Home' screen. Users can also change the equipment name, usage location and background color of the equipment image for registered instruments.

4.12.1 Initial Instruments Registration

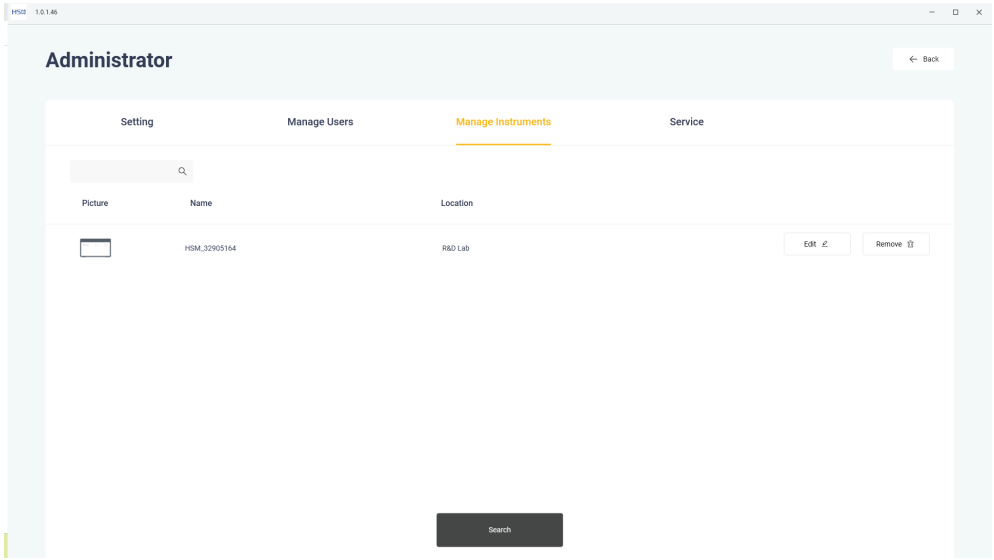


Figure 41. 'Manage Instruments' screen.

The instructions for registering an Instrument are as follows.

1. Select the account button labeled with the user name in the top right corner, then select **Manage Instrument** to access the 'Manage Instruments' tab. The screen will show instruments associated with the software.
2. To find HSM instruments that are attached to the computer and turned on, select the **Search** button at the bottom of the screen.

4.12.2 Instrument Maintenance

The HSM 3.0 Instrument requires minimal maintenance. However, it is important to clean the instrument at regular intervals. Spilled samples or reagents should be cleaned up immediately. Most parts of the instrument have an anodized coating, which forms a durable, easily cleaned barrier. However, if liquid gets inside the instrument, it may damage the electronics.

Always turn off and unplug the HSM 3.0 Instrument or the Power Supply before cleaning.

No additional maintenance is required for the HSM 3.0 Instrument, Power Supply or accessories. The Instrument and Power Supply do not contain any user-serviceable parts. Removing the Instrument or Power Supply casing will void the warranty.

5 HSM 3.0 Instrument Cleaning and Maintenance

5.1 General Care

Wipe up any spills immediately.

After each use, clean the instrument by wiping off the top and sides of the HSM 3.0 Instrument and the Tube Rack using a cloth or paper towel dampened with CaviCide® (Fisher Scientific Cat.# 22998800; VWR Scientific Products Cat.# 89132-864; or similar approved disinfectant) followed by 70% ethanol. Do not use other solvents or abrasive cleaners because they can damage the instrument's anodized coating.

Note: Wear gloves. If the instrument is used with biohazardous materials, dispose of any cleaning materials in accordance with your institutional guidelines.

If liquid enters the tube wells, carefully remove with a paper towel or similar. Decontaminate if necessary with CaviCide® (Fisher Scientific Cat.# 22998800; VWR Scientific Cat.# 89132-864; or similar disinfectant) followed by 70% ethanol as described above.

Repeat the procedure as many times as required to effectively disinfect and decontaminate the instrument.

- Keep the cooling vents in the back of the instrument and top of the Power Supply clear of dust.
- Do not remove the HSM 3.0 Instrument case for cleaning. This will void the warranty.
- Never allow liquids to sit on equipment surfaces for extended periods of time.

6 Troubleshooting

If you have questions that are not covered in this troubleshooting section, contact Promega Technical Services. Visit: **www.promega.com** to find your nearest Promega branch or distributor.

Symptoms	Causes and Comments
The instrument is making an unusual noise when it is turned on	One of the machine sensors might have dust interfering with it. Contact Promega or your local Promega representative for assistance with sensor cleaning.
Green LED does not light up	Check the Power Supply. If the Power Supply switch is turned on, the switch does not glow green, and you cannot hear the Power Supply fans running: • Check that the black Power Cord is securely connected to the back of the Power Supply. • Check that the black Power Cord is securely plugged in to a working electrical outlet. • An 8-amp fuse is located next to the power switch on the back of the Power Supply. Check the fuse. If the fuse is blown, replace the fuse.
	If you can hear the Power Supply fans running: • Check that the blue Power Cable is connected between the back of the Instrument and the Power Supply. • Listen for the fans and motors in the instrument. If they are running, it is most likely that the LED cable has become disconnected. Contact Promega or your local Promega representative for service.
Red LED lights up	Instrument error. Turn the HSM 3.0 Instrument off and then on again. If the red LED is still on, contact Promega Technical Services.
Power failure occurs during an instrument run	If power failure occurred during a prompt, be sure that power has been restored and the unit has completed its diagnostics test before acknowledging the prompt. There should be no effect. If the power failure occurred during an action step, restart the run on the software, and bypass steps until arriving at the step during which the power failure occurred. Complete this step, and proceed with the run.
	If the magnets are engaged, they need to be turned off prior to a shake command. If they are not turned off, the methods will error out and the red LED may light up. Add a Magnet step and select **Magnet off** prior to a shake command.

Symptoms	Causes and Comments
Instrument is not recognized as connected (has status of attention)	1. First power on the instrument, then launch the software. 2. If the instrument is not recognized as connected, disconnect and reconnect the communication cable. 3. If the problem continues, please contact Promega Technical Services.
Power failure occurs during an instrument run	If power failure occurred during a prompt, be sure that power has been restored and the unit has completed its diagnostics test before acknowledging the prompt. There should be no effect. If the power failure occurred during an action step, restart the run on the software, and bypass steps until arriving at the step during which the power failure occurred. Complete this step, and proceed with the run.
Poor-quality, low-yield or low-purity obtained	See the *ReliaPrep™ Large Volume Blood Genomic DNA Isolation System Technical Manual* #TM341, for more information. Or consult the technical manual for the reagents you are using.
Magnetic particles are washed off or not captured	The HSM 3.0 Instrument is intended for use only with Promega ReliaPrep™ paramagnetic particles.
	Check to make sure that the magnets are rotating 90 degrees during collection. You can remove the black top plate to observe the magnets. Replace the cover before running again. Do not remove the case as this will void the instrument warranty. If the magnets are not rotating fully, contact Promega or your authorized Promega representative for service.
Inconsistent results	Instrument run without the tube rack or the black top plate. The HSM 3.0 Instrument is designed to be used with the black top plate and tube rack in place; operation without these pieces may alter heating of the samples and adversely affect performance.
Communication error displayed	• Check that all the power and communication cables are connected securely. • Check that the instrument is on. • Check that the driver for the USB to serial converter is installed properly.
Forgotten User Password	An Administrator can reset user passwords.
Forgotten Administrator Password	Contact Promega Technical Services for assistance: **techserv@promega.com**

7 Appendix

7.1 Instrument Startup, Diagnostics and Errors

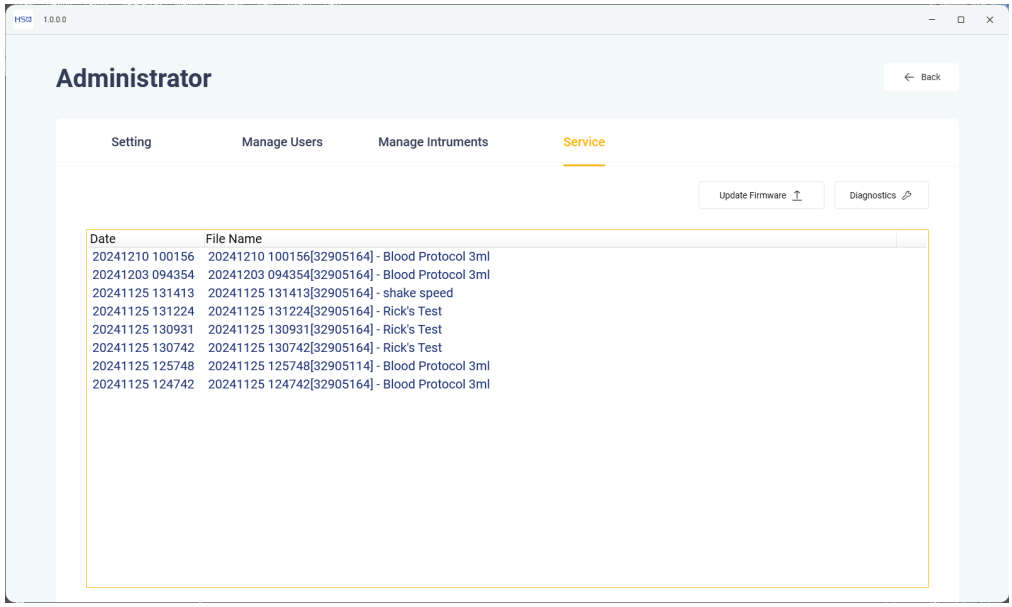
Each time the instrument is turned on, it will automatically perform a self-diagnostic test during which the platform, heating elements, and magnetic assemblies are initialized to check that the instrument is functioning.

If an error is detected, the red LED on the front of the instrument will light up. If this happens, turn the instrument off and on again. If the red light persists, contact Promega for service.

During operation, the instrument will automatically perform periodic self-diagnostic tests to verify that the platform, heating elements and magnetic assemblies are within calibration. If the instrument detects an error, contact Promega Technical Services.

7.2 Updating Firmware and Software

As new purification kits and applications become available, new versions of the HSM 3.0 Software and/or Firmware may be required. Firmware can be updated from any computer running supported versions of Microsoft Windows® OS with an available serial port or by using the included USB-to-Serial converter cable.

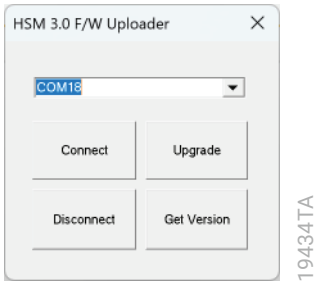


Firmware updates, software updates and new methods can be downloaded from Promega at: **www.promega.com/resources/software-firmware/other/hsm-3-0-software/**

Firmware can be accessed from the service screen by selecting the **Update Firmware** button.

Selecting the **Update Firmware** button opens a firmware update window that allows the administrator to update the firmware on all Promega HSM 3.0 devices connected to the PC.

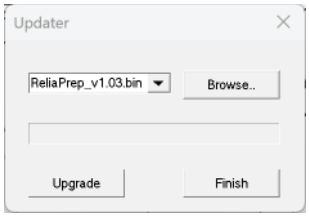
The firmware version installed on your instrument can be verified by accessing the Firmware Version option HSM 3.0 F/W loader.



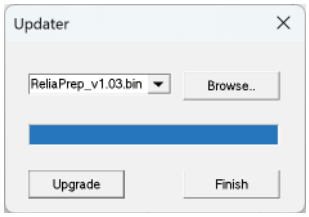
Select the COM port (communications port) connected to the instrument, and select **Connect**, then choose “get version” to return the current firmware version from that HSM.

To upgrade the firmware, select the COM port connected to the instrument, and select **Connect**. Press the **Upgrade** button to select the firmware on the HSM as shown on the screen.

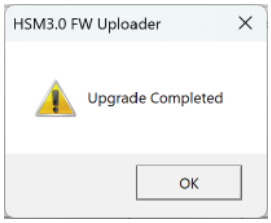
You can update by pressing the **next upgrade** button. After completing the upgrade, check the version with GetVersion. Exit with the **X** button.



19435TA



19435TB



19447TA

After completing the upgrade process, a message will be displayed indicating that the firmware upgrade was successful. At this point you can quit the Reliaprep.exe program.

Please contact Promega or your local Promega representative for assistance if you encounter any problems during the firmware upgrade process.

7.3 Information on Shake Speeds and Volumes

The HSM 3.0 Instrument is used to shake uncapped tubes. Please follow the protocol instructions provided in the software when processing samples. If tubes contain too much liquid, it may splash from the tubes during shaking. See Table 1 for recommended maximum shaking speed and volume combinations. When testing a new liquid/RPM combination, never exceed the recommended settings, and observe the liquid shaking in the tube to verify that the liquid/RPM combination does not spill. Never exceed 35ml of solution in a processing tube.

Table 1. Maximum Recommended Shaking Speeds and Volumes.

Volume	Water	50% Ethanol
35ml	550rpm	450rpm
30ml	620rpm	550rpm
25ml	680rpm	650rpm
20ml	700rpm	680rpm
15ml	700rpm	700rpm
10ml	700rpm	700rpm

7.4 Instrument Disposal

Contact your local Promega Representative when disposing of the instrument. Please follow your institutional guidelines when disposing of accessories.

7.5 Returning the Instrument and Accessories

The HSM 3.0 Instrument is designed to provide years of consistent performance with little maintenance. If a problem arises with your instrument, please contact Promega or your local Promega representative for support. If further action is required, repair options will be presented and a return authorization assigned if necessary. Promega is not responsible for instrumentation returned without an authorization number. When you ship the instrument for service, please remember to:

1. Obtain a return authorization from Promega.
2. Decontaminate the instrument (see Section 8 for Decontamination Instructions).

3. Affix a signed and dated Certificate of Decontamination to the outside of the package in which the instrument is returned. Failure to complete and attach the Certificate of Decontamination will result in a decontamination charge.
4. Use the original packaging to ensure that no damage will occur to the equipment during shipping. Any damage will incur additional charges.

   Note: If any of the original packaging is lost or damaged, contact Promega or your local Promega representative for replacement packaging.
5. Repack the equipment as follows:

7.5.1 Preparing the HSM 3.0 Instrument and Power Supply for Repacking

1. Ensure that the tubes are removed from the instrument platform.
2. Ensure that the Power Supply is turned off and not plugged in.
3. Ensure that the HSM 3.0 Instrument is turned off.
4. Make sure that the instrument is disconnected from the Power Supply.
5. Remove the feet from the bottom of the instrument and replace the wooden packaging support.

7.5.2 Repacking the Instrument

1. Place the instrument back into the plastic bag.
2. Place the protective cardboard pieces over the HSM 3.0 instrument and power supply.
3. Repack the HSM 3.0 Instrument accessories:

   - Rewrap the Tube Rack, Tube Rack Stand and Power Supply in bubble wrap and place in the appropriate location in the shipping container.
   - Place the RS-232 Cable, the Power Cable and the Power Cord into resealable bags, and place the bags into the accessories box. Place the accessories box into the shipping container.
4. Affix the Certificate of Decontamination on the outside of the shipping box. Write the return authorization number provided to you by Promega or your local Promega representative on the outside of the shipping box. Seal the box securely and send back on the original pallet provided.

Please contact Promega Technical Services for additional assistance if required.

7.6 Warranty Information

7.6.1 Limited Warranty and Service Guidelines (Pending Warranty and Service Contract Information)

Promega warrants to the original purchaser that the HSM 3.0 Instrument will be free from defects in materials and workmanship for a period of one year from the date of delivery. Promega agrees, as its sole responsibility under this limited warranty and upon prompt notice of a defect, to repair or replace (at Promega's discretion) any instrument discovered to be defective within the warranty period. Expendable items are not covered by this warranty. This warranty does not include repair or replacement necessitated by accident, neglect, misuse, unauthorized repair or modification of the instrument. The instrument may not be returned without a proper Return Authorization Number from Promega, as described below.

This warranty and the remedies set forth herein are exclusive and in lieu of all other express or implied warranties (including implied warranties of merchantability, fitness for a particular purpose and noninfringement), and no other warranties shall be binding upon Promega. In no event shall Promega be liable for any special, incidental or consequential damages resulting from the use or malfunction of this instrument or the system with which it is used.

To obtain service during the warranty period, please take the following steps:

1. Write or call the company that sold you the instrument and describe as precisely as possible the nature of the problem.
2. Carry out minor adjustments or tests as suggested by your technical contact.
3. If the instrument is still not functioning properly and needs to be returned to Promega for service, **you must obtain a Promega return authorization number** prior to shipping the instrument back.
4. Before returning the equipment, you are responsible for cleaning it and providing a Certificate of Decontamination to Promega in accordance with instructions.
5. After obtaining a Return Authorization Number and signing the Certificate of Decontamination, pack the instrument carefully (damage incurred in shipping due to improper packaging is not Promega's responsibility), write the Return Authorization Number on the outside of the package and ship it to the address provided by your technical contact.
6. Shipping to and from Promega will be paid by Promega pursuant to directions to be provided. The instrument will be repaired free of charge for all customers within their warranty period.
7. Under no circumstance can equipment be returned without proper authorization. This authorization is needed to ensure that the problem is not a minor problem that can be easily handled in your laboratory and to determine the nature of the problem so that repairs can be handled appropriately.

7.6.2 Out-of-Warranty Service

Contact Promega or your local Promega representative. We will be happy to assist you by telephone at no charge. Repair service, if needed, will be billed at a flat rate to be agreed upon in advance. Your invoice will include shipping.

7.7 Related Products, Warranties and Service Agreements

DNA Purification Kits

PRODUCT	QUANTITY	CAT.#
ReliaPrep™ Large Volume HT gDNA Isolation System	96 × 10ml to 960 × 1ml preps	A1751

Replacement Components

PRODUCT	QUANTITY	CAT.#
HSM 3.0 Tube Rack	1 each	A2713
HSM 3.0 Tube Rack Stand	1 each	A2714
HSM 3.0 Cover	1 each	A2712

Warranties

The Standard Warranty, included in the system price, covers all parts, labor and shipping to and from our service facility as well as a temporary replacement upon request. The temporary replacement will be shipped via standard ground shipment and will arrive in 5 to 7 working days. If you no longer have your instrument shipping carton, we will provide you with a box for shipment of the instrument back to our service technicians. We will repair it and return it to you performing to original factory specifications.

Service Agreement Options

After the warranty period is over, you can continue to receive the same comprehensive service and support from Promega you did when your system was under warranty. The Standard Service Agreement covers all parts, labor and shipping to and from our depot repair location as well as a loaner instrument upon request. If your instrument needs repair, we will provide a box for shipment of the instrument back to our service facility. We will repair it and return it performing to original factory specifications. The term is one year, and it is renewable.

PRODUCT	QUANTITY	CAT.#
HSM 3.0 Instrument Standard Service Agreement	1 year	SA1330
	2 years	SA1331
	3 years	SA1332

8 Certificate of Decontamination

Disinfection and decontamination are required prior to shipping the instrument and instrument accessories for repair. Instruments returned must be accompanied by a signed and dated Certificate of Decontamination attached to the outside packaging of the instrument.

To disinfect and decontaminate: Wipe off the outside surfaces using a cloth dampened with 70% ethanol followed by CaviCide® (Fisher Scientific Cat. No. 22998800; VWR Scientific Products Cat. No. 89132-86) following the manufacture's instructions. Follow immediately with a cloth dampened with deionized water to remove any disinfectant from the instrument surfaces. Remove the Tube Rack (Figure 1) and the cover (Figure 5) to expose the Magnet Bar and the Tube Holders. Wipe off the Magnet Bar and the Tube Holders using a cloth and foam- or cotton-tipped swabs dampened with 70% ethanol followed by a cloth and foam- or cotton-tipped swabs dampened with CaviCide® (Fisher Scientific Cat. No. 22998800; VWR Scientific Products Cat. No. 89132-864) following the manufactures instructions. Follow immediately with a cloth and foam- or cotton-tipped swabs dampened with deionized water to remove any residual bleach from the instrument surfaces. Repeat the procedure as many times as required to effectively disinfect and decontaminate the instrument.

Failure to confirm disinfection and decontamination will result in decontamination charges before the instrument will be serviced.

Select either (A) or (B):

- ☐ A. I confirm that the returned items have not been contaminated by body fluids or by toxic, carcinogenic, radioactive, or other hazardous materials.
- ☐ B. I confirm that the returned items have been decontaminated and can be handled without exposing personnel to health hazards.

Select the type of material used in the instrument:

- ☐ Chemical Biological
- ☐ Radioactive**

Briefly describe the decontamination procedure performed:

Date: _____

Place:_____

Signature:_____

Name (block capital letters):_____

** The signature of a Radiation Safety Officer is also required if the instrument was used with radioactive materials.

This instrument is certified by the undersigned to be free of radioactive contamination.

Date: _____

Place:_____

Signature:_____

Name (block capital letters): _____

Title:_____

9 Summary of Changes

The following changes were made to the 3/25 revision of this document:

1. All contents, including text, tables and photos, were revised from HSM 2.0 to HSM 3.0 and moved to a new TM template.
2. A patent statement was added.
3. Fonts were updated.

[a]U.S. Pat. Nos. 8,573,071 and 8,984,968; European Pat. No. 2488303; Chinese Pat. No. 102595412; Japanese Pat. No. 5775086; S. Korean Pat. No. 10-1718344; and Singapore Pat. No. 179918.

ReliaPrep is a trademark of Promega Corporation.

CaviCide is a registered trademark of Metrex Research Corporation. Windows is a registered trademark of Microsoft Corporation.

Products may be covered by pending or issued patents or may have certain limitations. Please visit our website for more information.

All prices and specifications are subject to change without prior notice.

Product claims are subject to change. Please contact Promega Technical Services or access the Promega online catalog for the most up-to-date information on Promega products.