
VIA Freeze

Quick start guide for the VIA Freeze controlled rate freezers



Version control

Version	Date	Authors	Comments
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Introduction

This is a quick start guide for the VIA Freeze controlled-rate freezer. The guide briefly covers unpacking and setting up the freezer, as well as the work flow normally required to run a freezing protocol and examine the result. This work-flow can be summarized as follows:

1. Turn system on
2. Log in
3. Select a protocol to run
4. Entering batch data for the run
5. Load samples onto SBS plates
6. Load SBS plates into freezer compartment
7. Start run
8. Unload samples when freezer has reached end temperature
9. Leave the lid off to allow the system to dry out
10. Finish run
11. The system will switch on the internal heater to dry out the system, this will take approximately 30mins and can be left unattended.
12. Examine and export recorded data from run
13. Go back to the main menu screen, see Figure 3, and either:
 - i) Log out and leave system switched on
 - ii) Shut down and when instructed by the system switch off and then unplug if required

For in-depth descriptions of this and other functionality, please consult the full VIA Freeze manual. In particular, the manual provides further detail about managing user accounts, customizing freezing protocols, error handling and remote access, as well as GAMP (Good Automated Manufacturing Practice) and FDA guidelines compliance.

Unpacking and powering on

1

Unpacking

On receipt from the couriers check the crate on all sides for damage and check any shockwatch and tip and tell indicators to see if the unit has been shocked or tipped excessively during transit. If damaged take photographs of damage and notify the couriers as soon as possible, an insurance claim may need to be made if the VIA Freeze is actually damaged.



1.1

Remove all screws from the top panel of the crate, using Pozidrive PZ2 screwdriver.



1.2

Carefully remove top panel and place to one side.



1.3

Remove all screws from the front panel.



1.4

Carefully remove front panel and place to one side.



1.5

Remove all screws from the back panel.



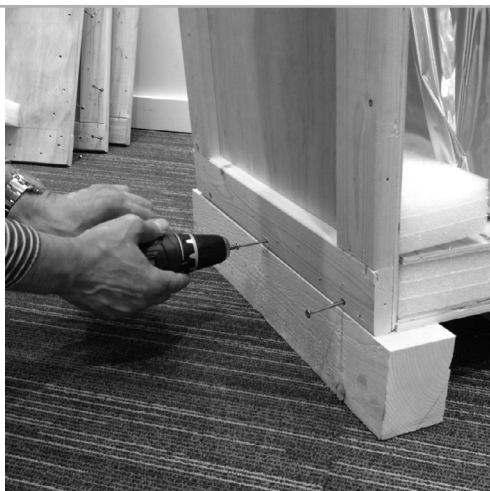
1.6

Carefully remove back panel and place to one side.



1.7

While supporting the remaining panels, remove all screws.



1.8

- Remove the remaining panels and place to one side. Please ensure the case contains the following:
- a. VIA Freeze system
 - b. Mains cable
 - c. Correct sample loading plates (depends on system and your order details)
 - d. Manual
 - e. Warranty card



1.9

With scissors, carefully pierce the foil and cut along the seam. Pull the foil packaging away from the VIA Freeze to avoid accidentally scratching its surfaces



1.10

Slide the foil to the base of the unit.



1.11

Lift out of foil packaging and off the crate base. We recommend two people lift the VIA Freeze Duo (40kg/ 88lb) and VIA Freeze Quad (64kg/ 141lb). We also recommend that since the bespoke packaging crate is designed for multiple use it is kept by the user. This in the event that the unit needs to be shipped in the future.



System	VIA Freeze Research	VIA Freeze Duo	VIA Freeze Quad
Weight	14kg (31lb)	40kg (88lb)	64kg (141lb)

Table 1 VIA Freeze System weights

The freezer should be taken out from this box and placed either on the floor or on a suitable desk, which is strong enough to carry the freezer in a safe manner (unit weights are shown in Table 1). For the VIA Freeze Duo and Quad, we recommend having two or more persons available when moving the system. If required, carrying straps can be affixed to the blue carrying handles to aid lifting and transport of the unit. The VIA Freeze Research can be safely moved by a single person.

2

Switching the unit on and validating basic operation

In the unlikely event that something unforeseen has happened during shipping we recommend performing a portable appliance test for electrical safety before plugging the unit into the electrical supply outlet.



2.1

Unpack the power cable and plug into the IEC socket at the back of the unit. Ensure the system has 15cm (6") clearance at the rear for the fan inlets and electronics panel. As the system vents warm air from the cryo-chamber through the underside of the unit, ensure the surface the system is placed on is a firm surface free of obstruction. Do not place on a fabric surface.



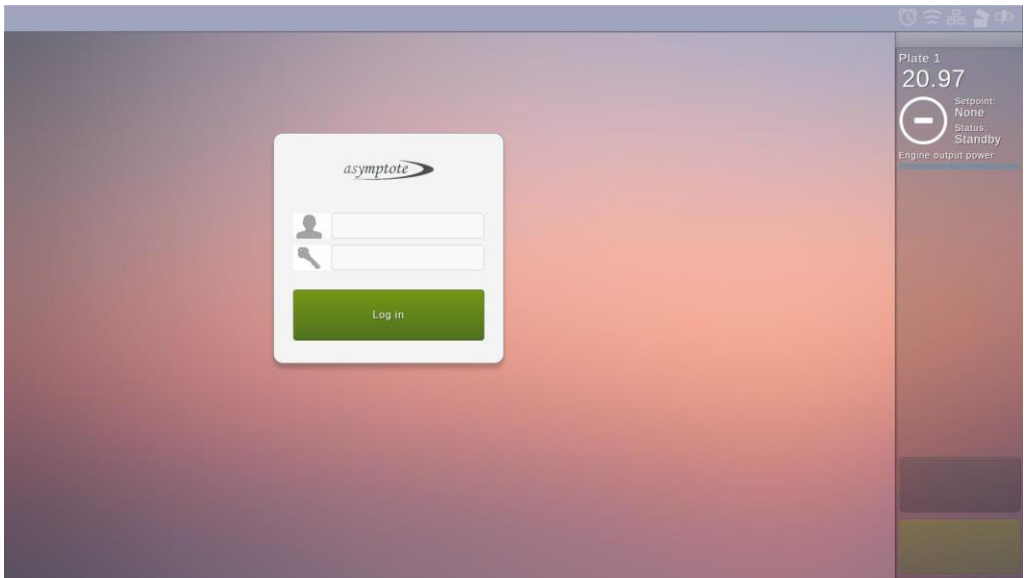
2.2

Switch on the power switch.



2.3

Wait for the system to boot up (this can take a minute or so) and you should be presented with the startup login screen which indicated that the system has correctly booted up and the temperature sensor on the top right hand side of the screen is reading approximately room temperature or the temperature that the unit has been stored at.



Logging in to the system

3

Two types of user accounts exist, 'User' and 'Admin', and you can log in as either from the login screen. If you log in as an Admin, you will have access to certain system settings, which a normal User account is not able to view. For the purposes of this document, it does not matter which user type you log in as. Please consult the manual for the default usernames/passwords.

3.1

When pressing a text input field on the touch screen, an on-screen keyboard will appear, see Figure 2. To log in, use this keyboard to enter your username and password in the relevant fields, accept the field as input, then press the 'Log in' button.

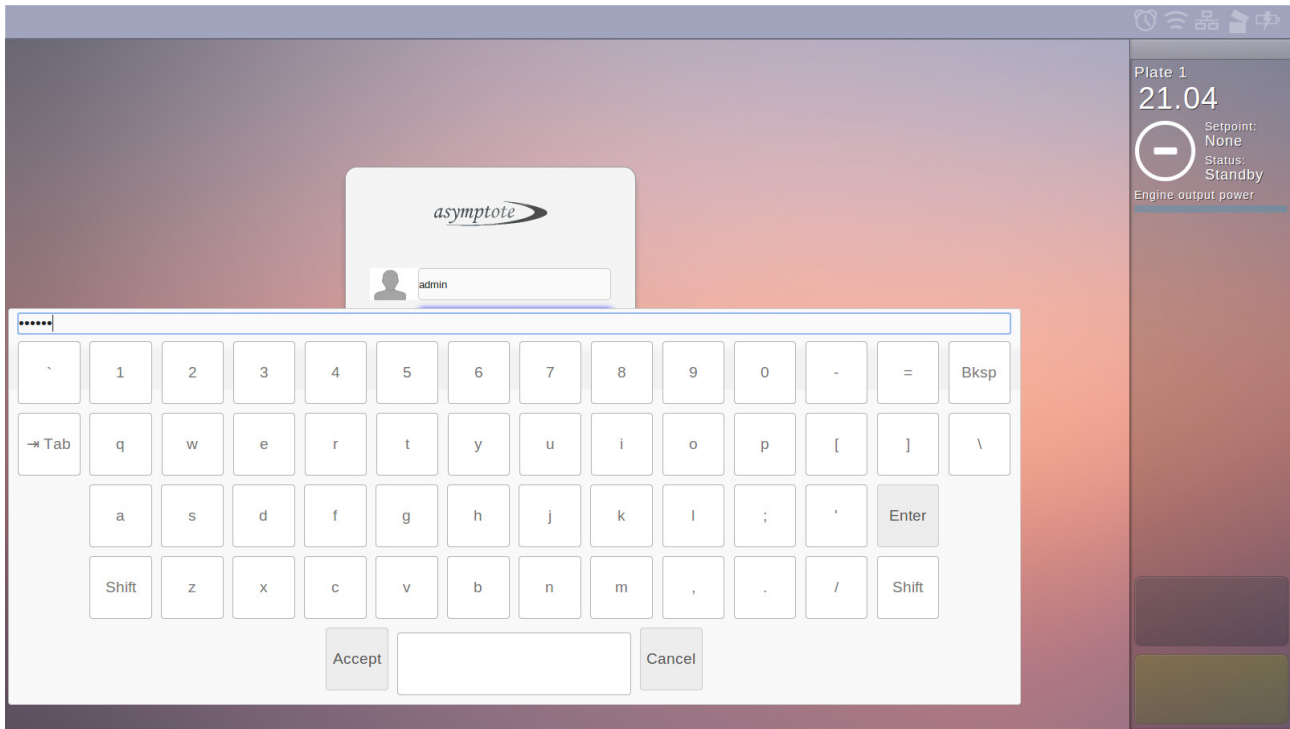


Figure 2 An onscreen keyboard appears when entering text

3.2

If the login attempt failed, e.g. because the wrong password was entered, an error message will be shown and the display will remain on the login menu. Otherwise, the main menu will appear on the display, see Figure 3.

The login is managed on a session basis, akin to when logging in to online banking. If this session expires, you will be redirected back to the login menu, and you will have to log in again. A session expires if left inactive for 15 minutes.

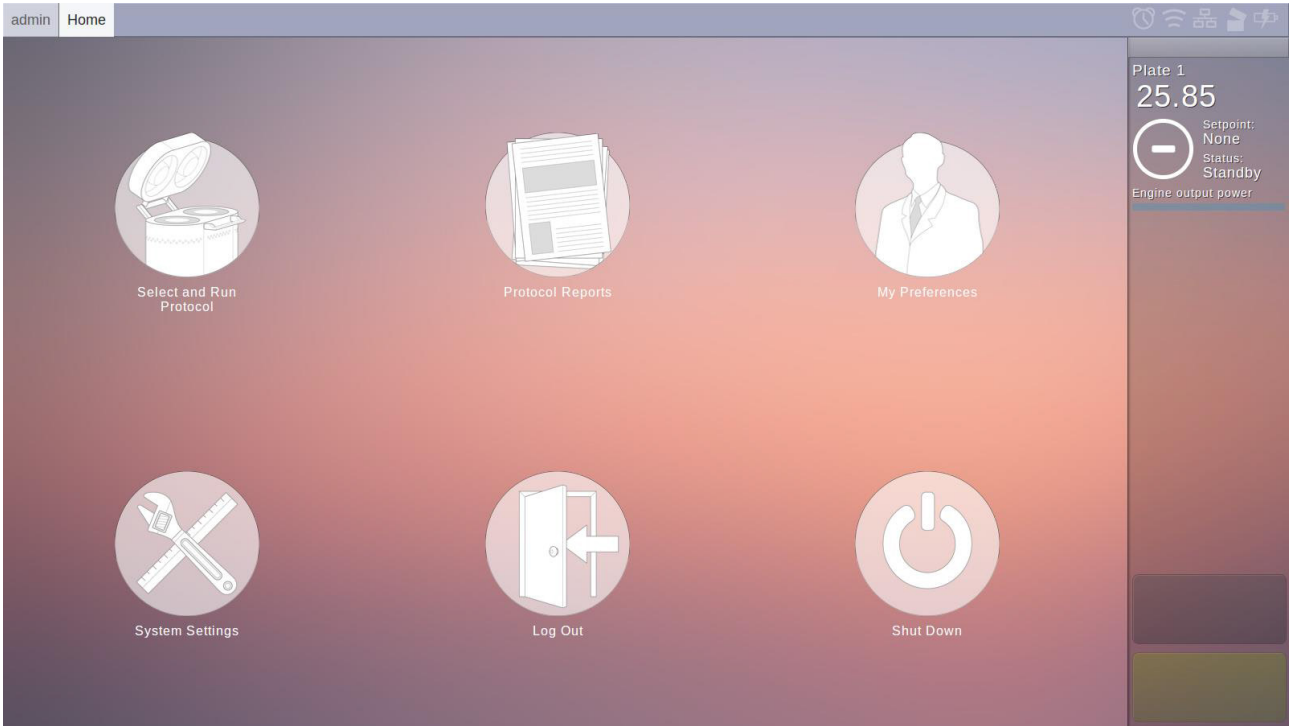
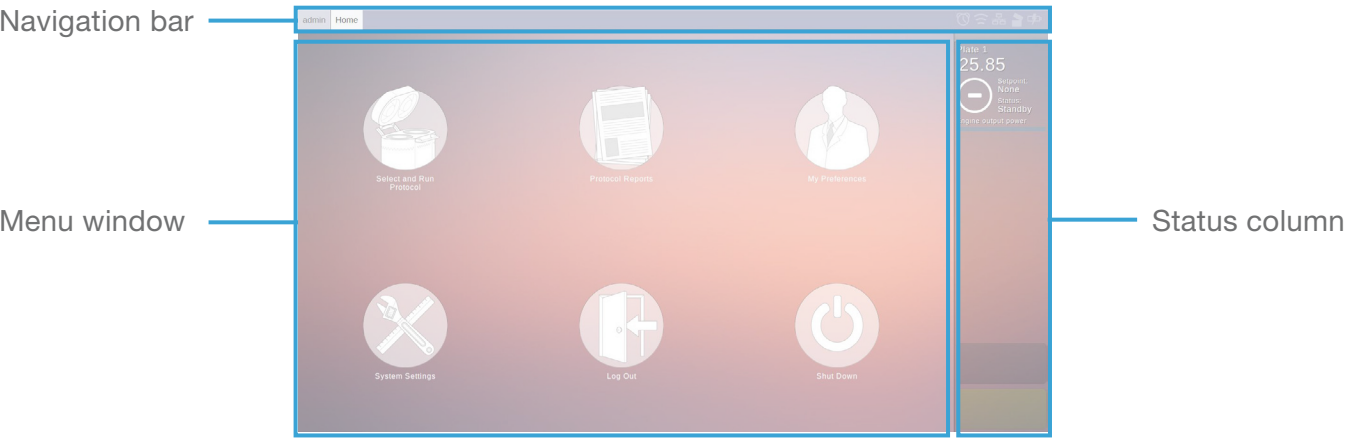


Figure 3 The main menu, as it appears when logged in as an Admin user. ‘System Settings’ will not appear if logged in with a User rather than Admin account.

The main menu

4

The main menu, as shown below, has three main areas: The navigation bar along the top, the status column on the right-hand side, and the menu window fills the remaining space.



The menu window is the main point of interaction and changes according to what menu is currently selected. When changing menus, the navigation bar will update to show the current menu location.

The status column shows the current status of the system. You will be able to see the temperature of the engine plate(s), the setpoint(s) (when running) that are being controlled to, the engine output percentage(s) (zero when not running), and the mode the plates in. This data is all updated every few seconds. The system modes most commonly encountered are

- 1. **Standby** The default mode, both engines and heaters are not powered
- 2. **Running** A controlled rate freeze protocol is running
- 3. **Heating** Heaters are on, this is used to drive away condensation after a protocol run and quickly prepare for the next run

There are also two buttons at the bottom of the status column. On the main menu these are blank and have no function. On other menus, and depending on state, these buttons will change and present you with various options, such as navigating back to the parent menu, or starting/stopping a run.

In general the menu window is used to select a menu, whereas the two buttons on the status column are used for navigating back (cancelling) and confirming actions.

Selecting a protocol to run and entering batch data

5

From the main menu, press 'Select and Run Protocol'

This changes the menu window to the select protocol menu, see Figure 4. Here you can select one of the stored cooling protocols, whether they are pre-installed or customized (see manual). Up to six protocols are shown at one time, and you can use the bottom arrows to scroll and see more protocols. Select any protocol by pressing its icon. This takes you to the run protocol menu.

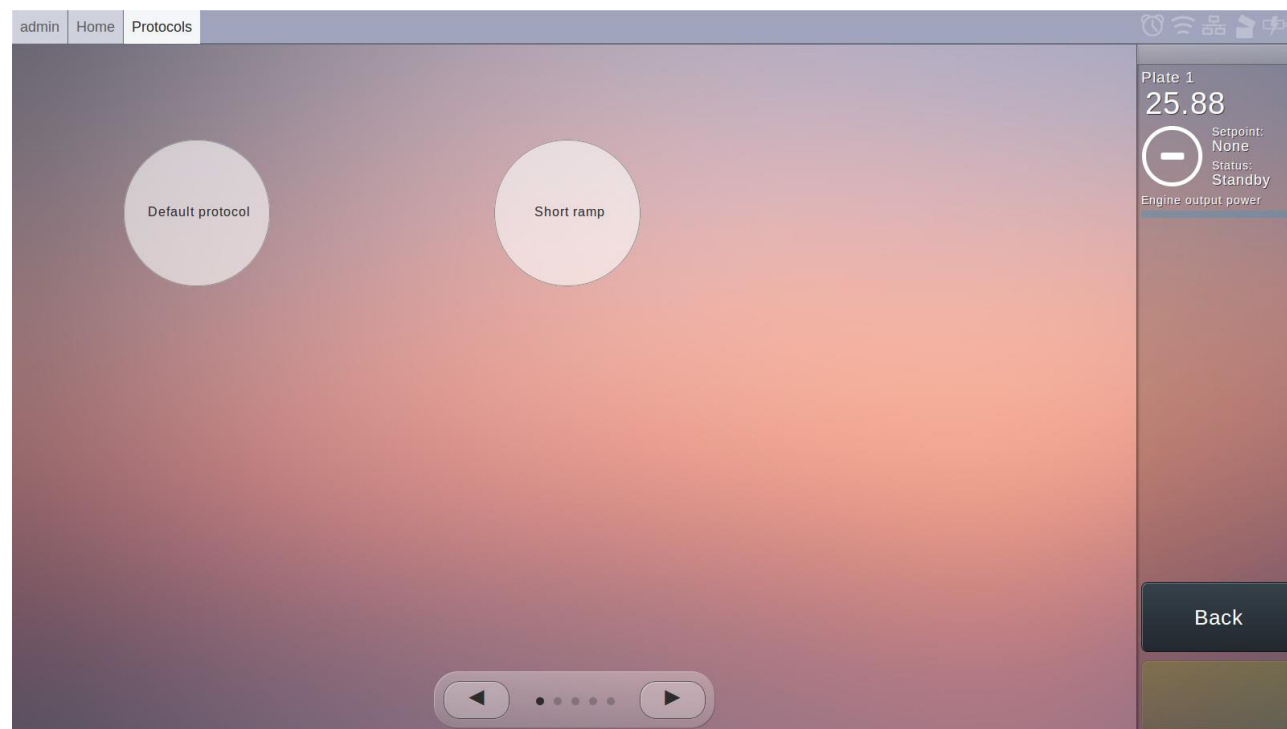


Figure 4 Select Protocol Menu

5.1

The run protocol menu has three tabs, which can be accessed via buttons on the bottom. The default is the protocol details tab; see Figure 5, which shows the protocol behaviour in detail. If the protocol is suitable, press 'Select protocol' at the bottom of the status column, which will change the menu window to the batch details tab, see Figure 6.



Figure 5 Run protocol menu, showing the protocol details tab. Use this to examine the protocol and ensure it is the correct protocol to run.

5.2

On the batch details menu, it is necessary to enter a name for the run, and barcodes and comments can optionally be added.

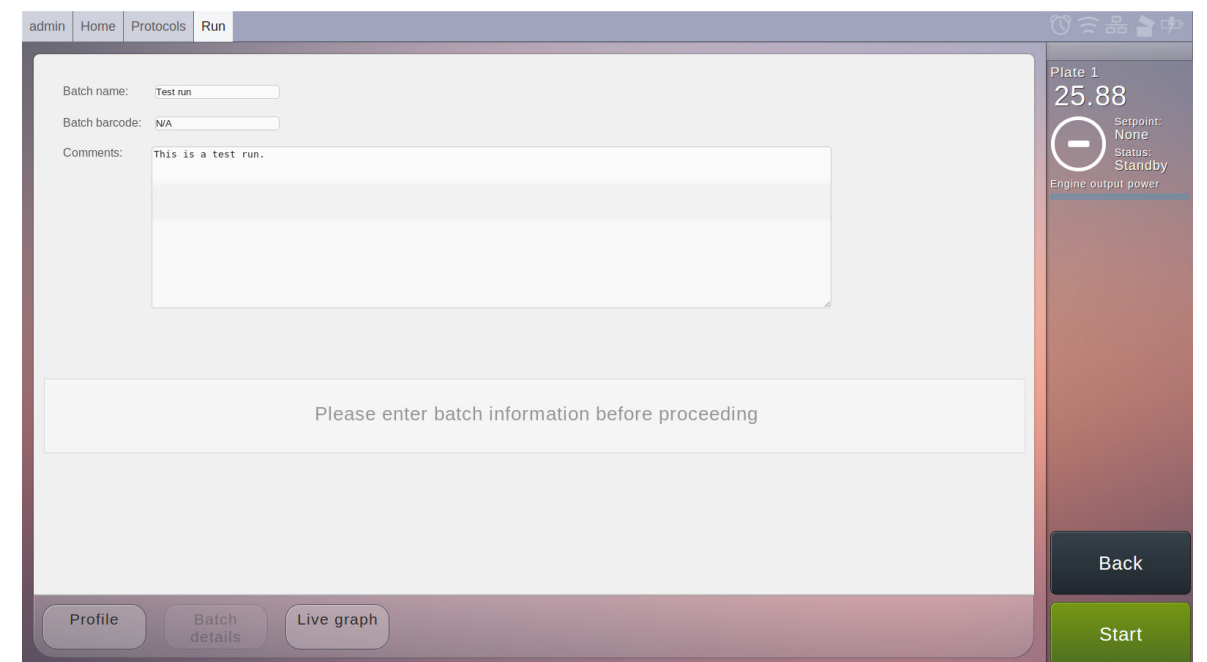


Figure 6 Run protocol menu, batch details tab. Use this menu to enter details about the run, such as name, barcodes and comments, before starting the run.

Loading SBS plates

6

As shown in Figure 7, before proceeding, load your samples onto the SBS plates and place the SBS plates in the cryo-compartment of the freezer. Then ensure the lid is properly closed.

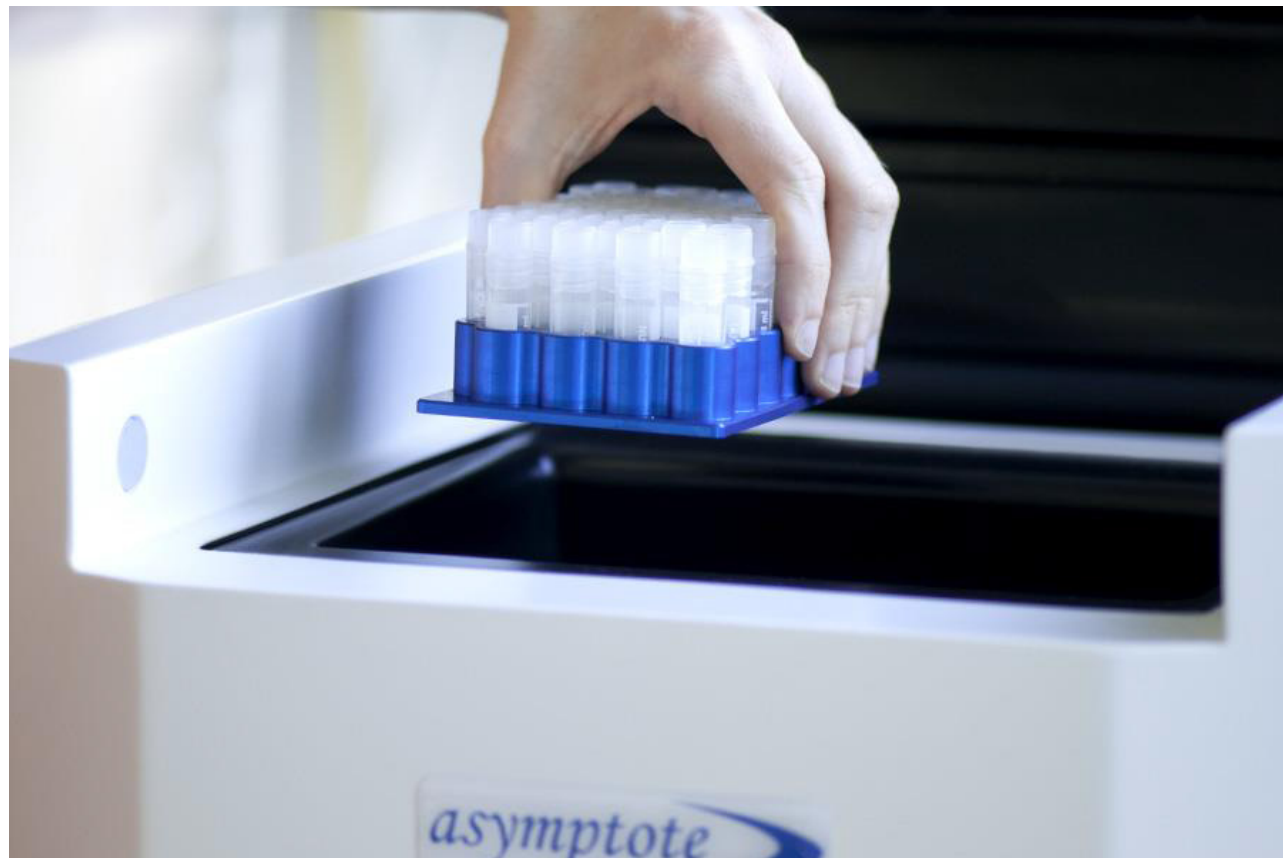


Figure 7 Loading a SBS plate

Starting a run

7

The system is now ready to be started, which is done by pressing 'Start' in the bottom of the status column. The menu window will change to the live graph tab, and a graph will be shown of the temperature, see Figure 8. The button 'Change graph' allows you to swap between graphing the current temperature/setpoint, and the current rates of those values, i.e. the cooling rates.

End of a run, unload and finish

8

While the system is running the user is able to abort or hold the run, if desired, which is explained in detail in the manual. However, the system can be safely left on its own until the run is finished. At this point, the green button at bottom of the status column will **illuminate 'Finish'**, as in Illustration 7. The lid can now be opened and the SBS plates removed. Once this is done, and the samples have been dealt with satisfactorily, press 'Finish'. The Stirling engines will turn off, and the heaters come on for a set period of time.

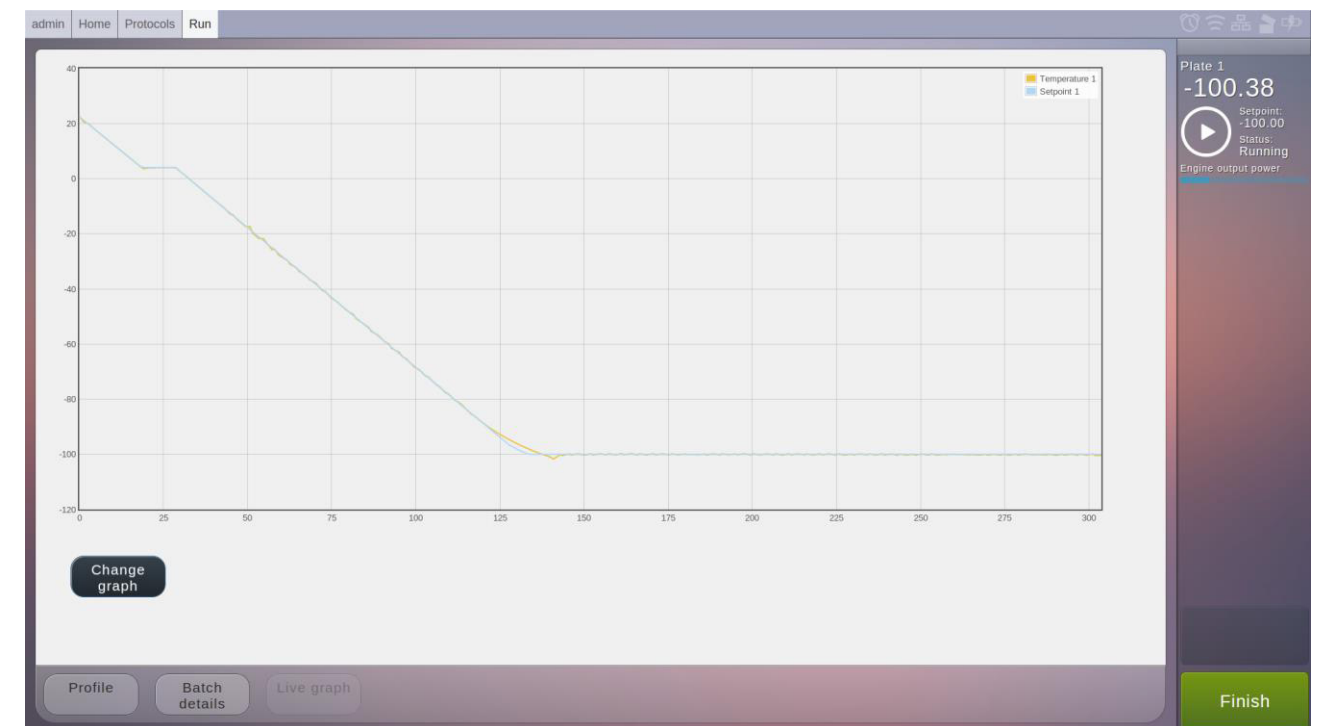


Figure 8 Run protocol menu, live graph tab. When the system is running, this shows a graph of current temperature or cooling rate, which updates in real-time.

Examine and export result

9

Once a run has been completed, from the main menu press 'Protocol Reports' to enter the result menu, see Figure 9. From this menu it is possible to export a result report. Selecting a result item and pressing 'Export' will give you the choice of exporting a report to USB or to an email address chosen by the user. The latter requires email functionality to be set up, please consult the manual for this.

The report consists of two parts:

1. a pdf document that contains data about the result, including name, barcodes, comments, user who started/finished the run, and graphs of temperature, setpoint and cooling rates.
2. a csv file which contains the raw temperature data logged during the run, and which is easily imported into a spreadsheet e.g. Excel.

Please consult the manual for how to validate and digitally sign reports.

It is also possible to click any of the result items in the list. Doing so changes the menu window to the result details menu. This menu is broadly similar to the run protocol menu and provides the same data, but it is not possible to start a run from the result detail menu. It is however possible to add comments to the result log, and it is also possible to examine graphs in more detail, see Figure 10.

This concludes the work flow required to run a protocol and view/export the result report.

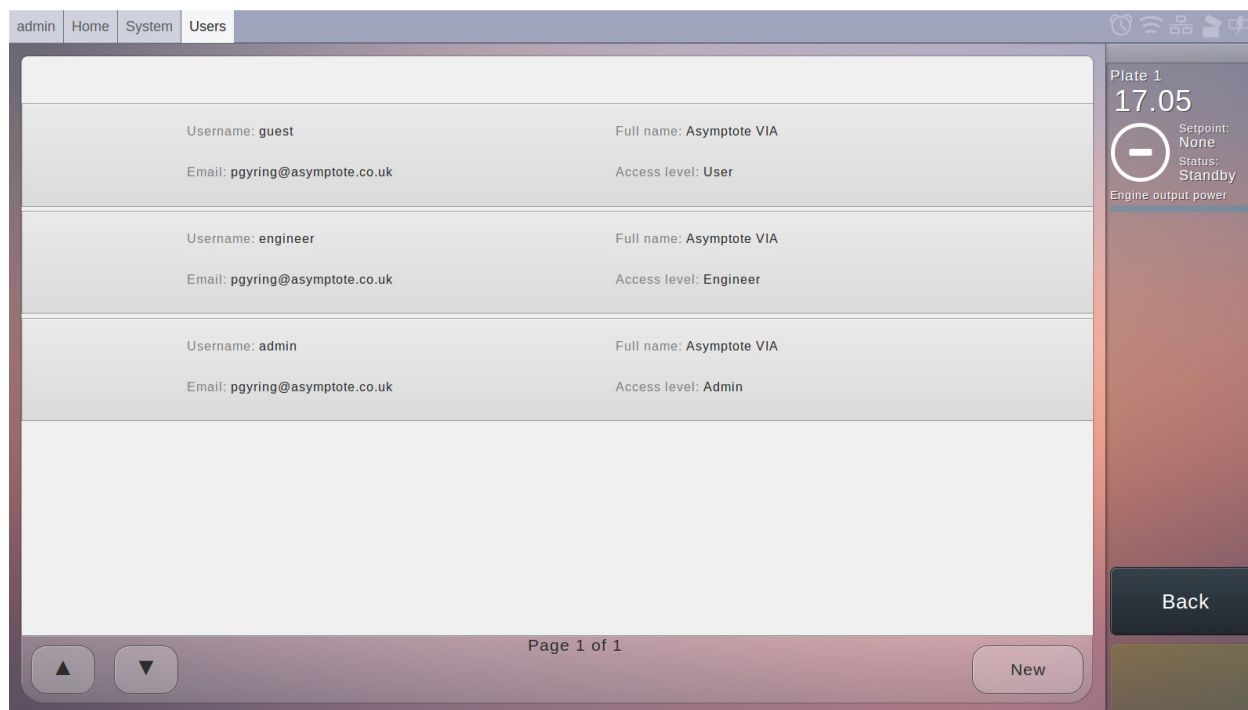


Figure 9 Result menu. This menu displays a list of completed freezing protocols, and allows the user to examine the logged data in more detail.

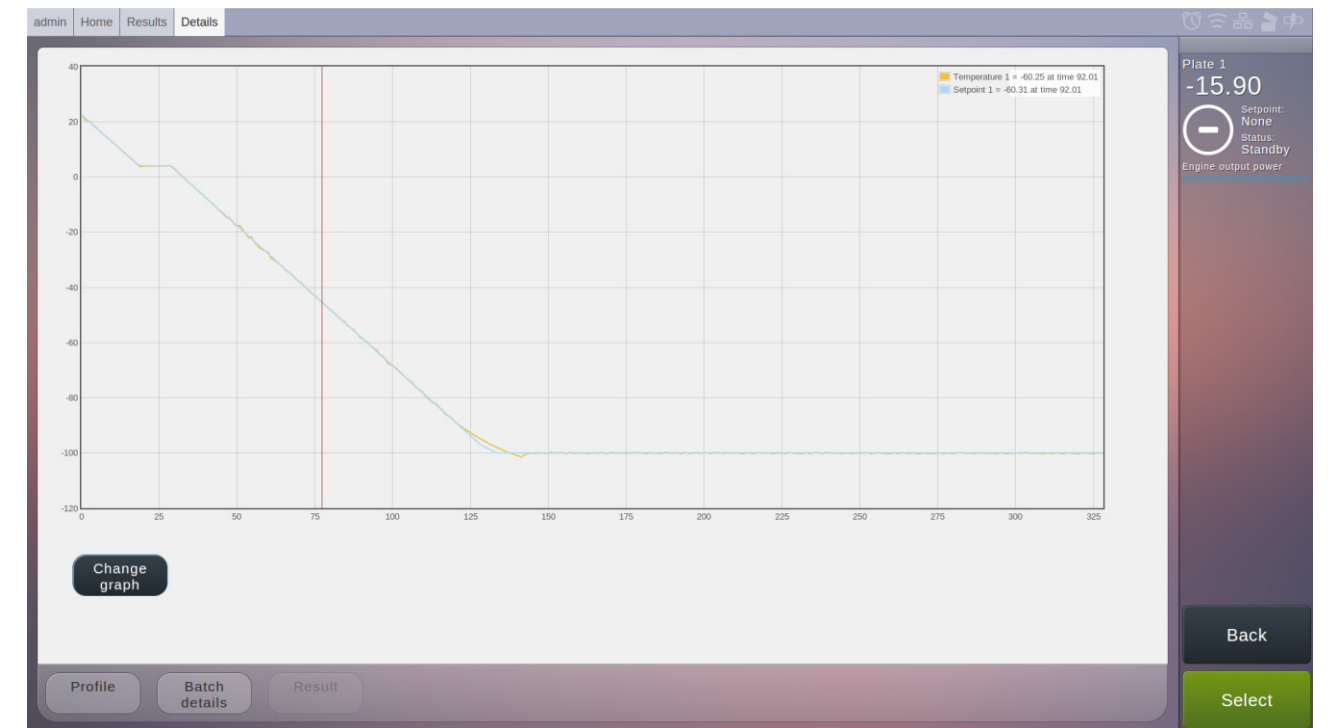


Figure 10 Result detail menu. The graph of logged temperatures allows the user to examine the result in more detail.

Logging out and shutting down

10

From the main menu, press 'Log Out' or 'Shut Down' to respectively log out of the system or shut it down completely. If logged out, it is not possible for an unauthorized user to make any further changes to the system. If shutting down, please wait until the screen shows that a successful shut down has been completed and it is safe to switch off and unplug the power cable.