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Instructions for Use for

# HydroControl

HYDROFLEX Washer Software

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30064355 04

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- Model name of your product
- Serial number (SN) of your product
- Software and software version (if applicable)
- Description of the problem and contact person
- Date and time when the problem occurred
- Steps that you have already taken to correct the problem
- Your contact information (phone number, fax number, e-mail address, etc.)



## WARNING

**CAREFULLY READ AND FOLLOW THE INSTRUCTIONS PROVIDED  
IN THIS DOCUMENT BEFORE OPERATING THE INSTRUMENT.**

### **Notice**

Every effort has been made to avoid errors in text and diagrams; however, Tecan Austria GmbH assumes no responsibility for any errors that may appear in this publication.

It is the policy of Tecan Austria GmbH to improve products as new techniques and components become available. Tecan Austria GmbH therefore reserves the right to change specifications at any time with appropriate verification, validation, and approvals.

We would appreciate any comments on this publication.



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### **About the Instructions for Use**

This document is intended as a reference and **Instructions for Use** for the HydroControl software, which is designed for defining and editing programs for the HYDROFLEX Washer via computer.

This document instructs how to:

- Install the software
- Operate the software

### **Remark on Screenshots**

Data and parameters displayed in screenshots vary depending on the instrument connected. Details and examples are described in the respective **Instructions for Use** of the instrument connected.

The version number displayed in screenshots may not always be the one of the currently released version. Screenshots are replaced only if content related to application has changed.

## Warnings, Cautions and Notes

The following types of notices are used in this publication to highlight important information or to warn the user of a potentially dangerous situation:



**Note**  
*Gives helpful information.*



**CAUTION**  
INDICATES A POSSIBILITY OF INSTRUMENT DAMAGE OR DATA LOSS  
IF INSTRUCTIONS ARE NOT FOLLOWED.



**WARNING**  
INDICATES THE POSSIBILITY OF SEVERE PERSONAL INJURY, LOSS  
OF LIFE OR EQUIPMENT DAMAGE IF THE INSTRUCTIONS ARE NOT  
FOLLOWED.

## Symbols

	Manufacturer
	Consult instructions for use
	Biological risks
	Possible presence of a strong magnetic field

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# 1. Introduction

## 1.1 Intended Use

HydroControl is the control software for the HYDROFLEX plate washer. It is designed for defining and editing programs, plate parameters, and instrument settings via a computer. The plate washer and included software should only be used by trained personnel according to the Intended Use of HYDROFLEX.

Before operating the plate washer with HydroControl software carefully read and follow the instructions provided in this document as well as the Instructions for Use of the HYDROFLEX washer.



**Note**

***It is important to note that the proper installation of the instrument and the HydroControl software alone will not ensure compliance with all regional and national laws and requirements. Corresponding policies concerning processes and standard operating procedures, including validation and quality control, must also be established.***

## 1.2 User Profile

### 1.2.1 Professional User – Administrator Level

The administrator is a person who has suitable technical training and corresponding skills and experiences. If the product is used as intended, the person is able to recognize and avoid dangers.

The administrator has extensive skills and is able to instruct the end user or the routine user in assay protocols in connection with a Tecan product within the bounds of the intended use.

Computer application skills and good English skills are required.

### 1.2.2 End User or Routine User

The end user or routine user is a person who has suitable technical training and corresponding skills and experiences. If the product is used as intended, the person is able to recognize and avoid dangers.

Computer application skills and good language skills for the respective national language at the installation site and English are required.



**Note**

***Training dates, their duration and frequency are available at your customer support.***

***Address and telephone number can be found on the web:  
<http://www.tecan.com/customersupport>***

## 1. Introduction

# 1.3 Specifications

## 1.3.1 System Requirements

The following-system requirements have to be met to use the HydroControl software:

	Minimum	Recommended
<b>PC</b>	Windows compatible PC with a Pentium compatible processor running at 1 GHz (Dual Core)	2 GHz (Dual Core)
<b>Operating System</b>	Windows XP (32-bit) – SP3 Edition: Professional	
	Windows 7 (32-bit) – SP1 Windows 7 (64-bit) – SP1 Editions: Professional, Ultimate, Enterprise	Windows 7 (64-bit) – SP1 Edition: Professional
	Windows 8 (32-bit) Windows 8 (64-bit) Editions: Pro, Enterprise <b>Windows RT NOT supported!</b>	
	Windows 10 (32-bit) Windows 10 (64-bit) Editions: Pro, Enterprise	
<b>Memory</b>	Windows XP: 512 MB RAM	1 GB RAM
	Windows 7, Windows 8, Windows 10 (32-bit): 1 GB RAM	2 GB RAM
	Windows 7, Windows 8, Windows 10 (64-bit): 2 GB RAM	4 GB RAM
<b>Space Requirements</b>	2 GB	6 GB
<b>Monitor</b>	Super VGA Graphics	
<b>Resolution</b>	1024 x 768	1280 x 1024
<b>Color Depth</b>	8-bit	
<b>Mouse</b>	Microsoft mouse or compatible pointing device	
<b>Communication</b>	1 x USB 2.0	2 x USB 2.0, USB 3.0 Port 1 x RS232 (Serial)
<b>Devices</b>	1 x CD-ROM drive	
	Windows 7, Windows 8, Windows 10: DirectX 9 graphics device with WDDM 1.0 or higher driver	



	Minimum	Recommended
.NET	<p>Microsoft .NET Framework 3.5 (SP1): In Windows versions prior to Windows 8, the required .NET version is installed automatically alongside any existing versions.</p> <p><b>Windows 8, Windows 10:</b> The user will be prompted to install the required .NET framework, if it is not already present.</p>	

## 1.4 Packing List

Content of data medium:

- HydroControl V 4.3
- EVOware Washer Driver V 4.3
- Fluent Washer Driver V 4.3
- Manuals

## 1.5 Installation and Uninstallation

### 1.5.1 Installing the Program



#### CAUTION

IT IS VERY IMPORTANT THAT THE PERSON WHO INSTALLS THE HYDROCONTROL SOFTWARE HAS SYSTEM ADMINISTRATOR<sup>1</sup> RIGHTS ON THE COMPUTER.

HydroControl is installed by a software setup program. All of the necessary components are installed automatically.

The software is installed using the following procedure:

1. Insert the **HydroControl** data medium into the appropriate drive.
2. The **Main** page of the user interface appears. Click **Main**.
3. On the next screen click on **Software** and then on **Install HydroControl**.
4. A series of screens will appear, read each one, enter any necessary information and click **Next** to continue.
5. The files are installed and the program icon is created.
6. When the **Installation Complete** dialog box appears, click **Finish** and the program is ready to be used.
7. Store the **HydroControl** data medium in a safe place in case the software needs to be reinstalled.

## 1.5.2 Uninstalling the Program



### CAUTION

**IT IS VERY IMPORTANT THAT THE PERSON WHO UNINSTALLS THE HYDROCONTROL SOFTWARE HAS SYSTEM ADMINISTRATOR<sup>1</sup> RIGHTS ON THE COMPUTER.**

<sup>1</sup> See 4 User Administration for differences between User Administrator, Hydro\_Administrator and System Administrator.

If necessary, the software is uninstalled using the following procedure:

1. Go to **Start** menu, point to **Settings** and then choose **Control Panel**.  
The Control Panel window appears.
2. Choose **Add/Remove Programs** in case of Windows XP, or **Uninstall a program** in case of Windows 7, Windows 8 and Windows 10.  
The respective window appears.
3. From the list of installed programs, choose **HydroControl** and click **Change/Remove** or **Uninstall**.
4. Follow the instructions on the screen.
5. Once all the files have been removed successfully, click **Finish** and the program is uninstalled and no longer listed in the **Add or Remove Programs** window.

The uninstall application also offers the possibility of uninstalling all components. Select whether user data should be deleted as well.

In this case all server and user administration components (and any associated Help files and Registry entries) will be removed.

Effect: All users will be erased.

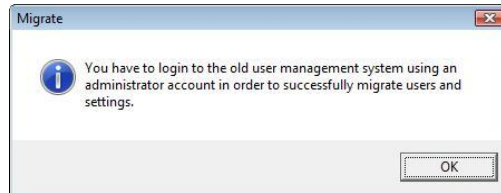
Decide if you want to uninstall the user administration as well. A new user administrator has to be created next time the application is installed.

## 1.6 Installation Notes

### Installing HydroControl 4.0 or higher when Magellan 6.6 or older is installed or HydroControl 3.0 or older is installed.

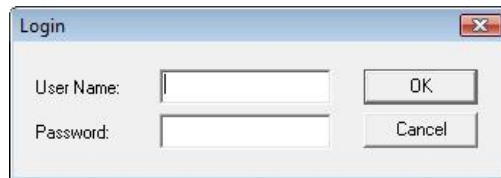
Perform the Setup for the HydroControl 4.0 or higher software as described in the IFU.

If Magellan 6.6 or older is installed, the **Migrate** dialog box for the Magellan software appears:



Click **OK**.

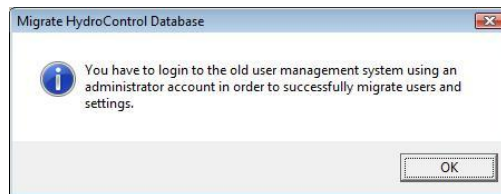
The **Login** dialog box appears:



If you wish to transfer user information from Magellan to HydroControl 4.0 or higher, enter the User Name and Password for Magellan and click **OK**. If you do not wish to transfer the user information, click **Cancel**. If you are unsure about what to do, click **Cancel**.

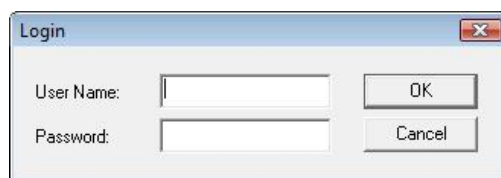
If you click **Cancel**, you can still define this user information manually later. If you click **OK**, you can also define new user information manually, but any user information transferred from Magellan cannot be removed later.

If HydroControl 3.0 or older is installed, the **Migrate HydroControl Database** dialog box appears:



Click **OK**.

The **Login** dialog box appears:

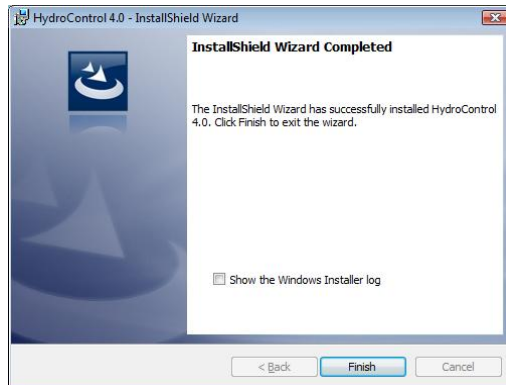


If you wish to transfer user information from the previously installed HydroControl software to HydroControl 4.0 or higher, enter the User Name and Password for the previous HydroControl and click **OK**. If you do not wish to transfer the user information, click **Cancel**. If you are unsure about what to do, click **Cancel**.

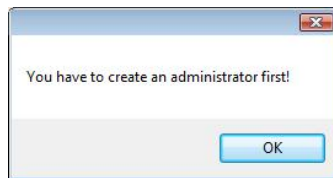
If you click **Cancel**, you can still define this user information manually later. If you click **OK**, you can also define new user information manually, but any user information transferred from the previous HydroControl software cannot be removed later.

## 1. Introduction

Continue the installation of the HydroControl 4.0 or higher software as described in the IFU.



Start the HydroControl 4.0 or higher software. When starting the first time and if no user information has been transferred from Magellan or previous HydroControl software, the following dialog box appears:



Click **OK** and the **Create User** dialog box appears:



Please be aware that the suggested login information can be changed. After the User Name, Full Name, Password and Confirm Password have been entered, click **OK** to proceed.

## 2. Starting HydroControl

Connect the instrument to the computer and switch the instrument ON.

Start the program from the **Start** menu: **Programs/Tecan/HydroControl**.

The **Connect** command from the **Instrument** menu can be selected only when the **Program** menu is visible on the instrument's display.

HydroControl can also be used in simulation mode for creating and editing programs when no instrument is available.

### 2.1 User Administration Quick Start

For a more detailed description, see 4 User Administration.

When the HydroControl software is started the first time after installation, a User Administrator password must be defined, (see 4.1.1 Logging in for the First Time for more information). By default the user name for the User Administrator<sup>1</sup> is **Admin**.

After successfully entering the user administrator password, the user administration database is set up with default user groups and users and the **User Administration** dialog box appears.

The default user groups are as follows:

- **Hydro\_Administrator1**
- **Hydro\_Application\_Specialist**
- **Hydro\_Operator**

The default user and membership is as follows:

- **Admin**

Full name: Administrator

Initial Password: To be set at first startup

This is the User Administrator<sup>1</sup>. Do not confuse the User Administrator with the Hydro\_Administrator.

The default settings can be changed now (or at any time later, if the logged in user has User Administrator rights). New users and user groups can be added and modified.

Individual groups and users have a name, (**Group Name** and **User Name** respectively), which cannot be changed once entered and saved. Users also have a **Full Name** that can be changed later.



#### Note

*Usually, the User Administrator should only have rights to set up users and user groups and assign rights to them. It is recommended that the User Administrator has no rights on the application itself!*

Any user can also be a User Administrator<sup>1</sup>, regardless which user group he belongs to, but it is not recommended to give users **System Administrator**<sup>1</sup> rights!



#### CAUTION

**IF THE USER ADMINISTRATION PASSWORD IS FORGOTTEN,  
USER ADMINISTRATION SETTINGS CANNOT BE CHANGED  
AND THE HYDROCONTROL SOFTWARE MUST BE COMPLETELY  
REINSTALLED.**

## 2. Starting HydroControl

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**Note**

***It is recommended that at least two User Administrators are created and that User Administrators be members of a user group with no or minimal application rights.***

Rights are assigned to user groups only, not to individual users!

All users that belong to a particular user group have the rights assigned to that user group.

See 4.1 User Rights for a table of the **User Administrator** rights and default **User Group** rights.

The initial password is valid only once! This means that a user has to change the password at first login. (This does not apply to the User Administrator).

Default options for the user administration are as follows:

- Automatic logout after 15 minutes idle time
- Exit application (and disable user) after 3 unsuccessful logins
- Password must contain at least 5 characters
- Password expires after 90 days
- The initial password given by the User administrator is only valid for 3 days. (Once this time has expired, the User Administrator must reset the password.)

The user administration can be optionally configured to send an email to a specified person (administrator or supervisor) when a user is disabled (because of too many unsuccessful login attempts, see Email Options).

To lock the current application, press the key combination Alt-F12. To continue, the user has to log in again.

For more information see 4 User Administration.

<sup>1</sup> See 4 User Administration for differences between User Administrator, Hydro\_Administrator and System Administrator.

## 2.2 Connect an Instrument


Up to four instruments can be connected to the software.



**CAUTION**

**INSTALL THE SOFTWARE BEFORE CONNECTING THE INSTRUMENT TO THE COMPUTER.**

Connect the instrument to your computer and switch the instrument on. Start the program by selecting **Programs/Tecan/HydroControl** from the **Windows Start** menu.

Select **Connect** from the **Instrument** menu or click the connect button  and the following dialog box appears:

Connect to:			
Instrument Name	Type	Alias	Port
Hydro	Washer	Simulation	HydroFlex...

Additionally connect to:	
Instrument Name	Port

Show simulated instruments      HYDROFLEX ▾

OK
Cancel

In the **Connect to Instrument** dialog box select the instrument name.

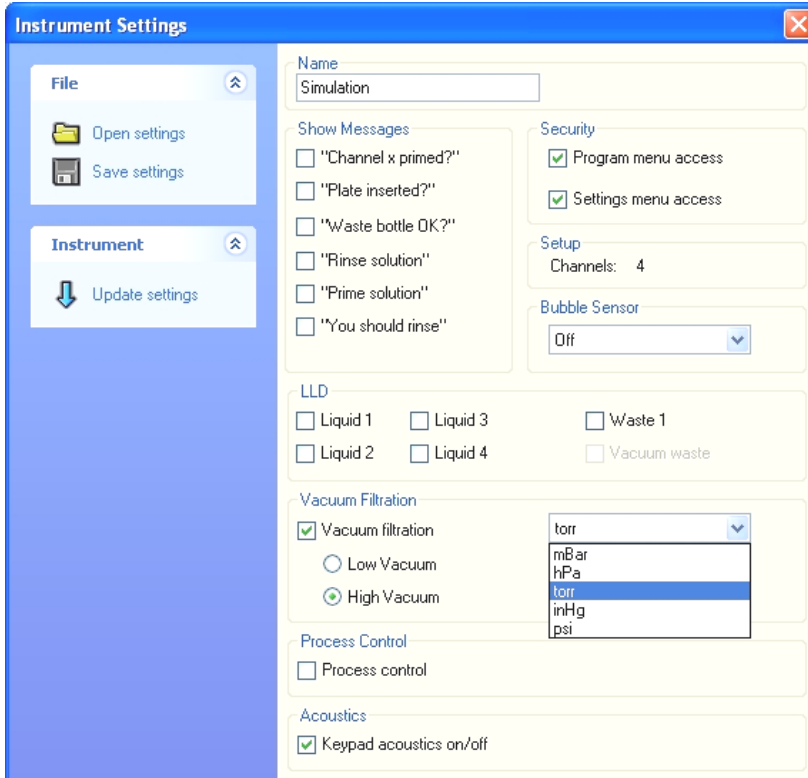
Select **Show simulated instruments** if no instrument is connected. Select the instrument to be simulated from the drop down list.

Click **OK** to start HydroControl.

### 2.3 Instrument Settings

The instrument settings can be changed and downloaded to the instrument using the HydroControl software.

Select **Settings** from the **Instrument** menu and the following dialog box appears:



The name of the instrument appears in the **Name** textbox.

In the **Show Messages** area, select the checkboxes next to the message(s) to be displayed.

In the **Security** group box, access to the program and settings menus on the instrument can be allowed or denied. Select **Program menu access** to make **Define/Edit** in the program menu available on the instrument and select **Settings menu access** to make the settings menu available on the instrument. This security measure can only be set via the HydroControl software.

Under **Setup** the number of channels appears.

Set the **Bubble Sensor** sensitivity to **Low**, **Medium**, or **High** depending on liquids used (if this option is installed). If very foamy liquids are used the bubble sensor should be switched off.

Under **LLD** switch on or off the liquid level sensors.

Select **Vacuum Filtration – Low or High Vacuum** – to use this option and select the **Unit** of measurement.

The following vacuum pressure units can be selected: mBar, hPa, torr, inHg, psi  
 Select **Process Control** to use this option and to detect if one or more needles are not or too little dispensing/aspirating liquid or if a non-conductive liquid is being used.

Click **Open Settings** to set the options according to previously saved settings. Click **Save Settings** and enter a name for the file, the extension '\*.xml' will automatically be added, then click **OK**.

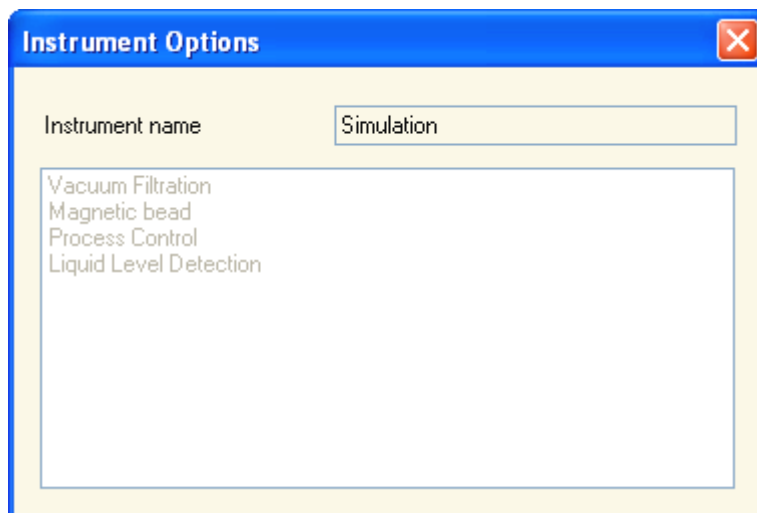
Once the settings have been defined, click **Update Settings** and the settings will be sent to the instrument.

Click **Keypad acoustics on/off** to adjust the volume of the keypad sounds.



## 2.4 Instrument Options

Select **Options** from the **Instrument** menu to open the **Instrument Options** dialog box, in which the currently installed options can be viewed.



The following options are available for the HYDROFLEX Washer:

- Vacuum Filtration
- Magnetic Bead Separation
- Process Control
- Liquid Level Detection

### 2.4.1 Vacuum Filtration

Vacuum filtration step is used when working with special filtration microplates (e.g. PCR-cleanup).

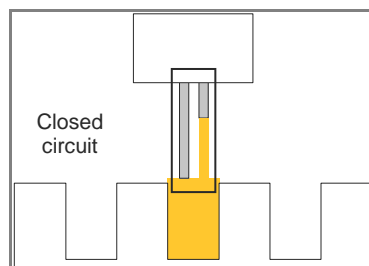
The user can select between low (-50 to -150 mBar) and high (-150 to -850 mBar) vacuum filtration.

### 2.4.2 Process Control

The instrument can detect if one or more needles are not dispensing/aspirating liquid or if a non-conductive liquid is being used.

Process Control only works with the OVERFLOW wash procedure.

The wash buffer forms an electrical connection between the dispensing needles and the aspirating needles. As soon as the wash liquid touches the aspirating needles the electric circuit is closed.



The following errors can be detected using this method:

## 2. Starting HydroControl

### Dispense Error

An error message appears if some of the needles are dispensing no or too little solution. Possible errors could be a result of blocked dispensing needles, bubbles in the dispensing channels, empty liquid bottles or the dispensing pump is broken.

If no connection between the dispensing needles and the corresponding aspirating needles is made at least 30 µl before the dispensing step is finished, the wash program will be interrupted.

### Aspiration Error

In order to prevent the wells from overflowing, the instrument checks when the individual aspiration needles come into contact with the wash solution.

If this happens before 200 µl have been dispensed into the wells the program is stopped immediately and an error message appears. This can occur when the well was not or not completely aspirated, due to a blocked aspirating needle/tube or the general aspiration being too weak.

### PC Function Error

Before each wash procedure and each row the program checks whether there is an electrical connection between the dispensing and aspirating needle(s). If a connection exists, the dispense and aspiration errors cannot be detected and the program is interrupted immediately or will not even be started.

The bottom of the manifold must then be cleaned, as the deposits from the wash buffer can produce an electrical connection between the needles, which could prevent the Process control option from functioning correctly.

### PC System Error

Process control is not working. Electronics are defective.

### Requirements for Process Control

The following conditions are required for the process control to function properly.

- The conductance of the wash buffer must be between 5 mS/cm and 30 mS/cm.
- The wash procedure must be performed in overflow position, so that through the simultaneous dispensing and aspiration a closed circuit is formed and a min. wash volume of 450 µl.

### Conductance of Some Standard Wash Buffers

Most of the commercial wash buffers lie in the mentioned conductance ranges. The conductance is proportional to the wash buffer concentration.

The following values were measured using a normal dilution:

Wash buffer Ortho Diagnostic System:	1:20 - 14.0 mS/cm
Wash buffer SIGMA: Phosphate buffered saline tablets:	1 tablet in 200 ml - 14.7 mS/cm
Wash buffer bioMérieux: Phosphate buffer concentrate:	1:25 - 13.7 mS/cm
Wash buffer BOUTY: Beta IgM:	1:20 - 14.2 mS/cm
Wash buffer MUREX: Wash fluid (Glycine/Borate):	1:20 - 7.8 mS/cm
Wash buffer BIOTEST ELPHA: (Nr. 3 + 4):	1:10 - 28.1 mS/cm

### 2.4.3 Liquid Level Detection (LLD)

Liquid level sensors are built into the covers of all bottles to avoid overflow of waste bottles and to warn the user when the liquid bottles are almost empty.

## 2.5 Magnetic Bead Separation

The HYDROFLEX can be equipped with different plate carriers when working with magnetic beads. The selection of the plate carrier depends on the type of magnetic beads and the plate format used.

- **MBS-96 carrier** is used for 96-well microplates. This carrier has strong magnets placed exactly under each well. This carrier can be used when working with weak magnetic beads or small magnetic beads, such as  $\mu$ -one Dynabeads with approx. 1  $\mu$ m diameter.
- **Smart 2 MBS-96 carrier** is used for 96-well microplates. This carrier uses two magnets per well to achieve good bead recovery and low residual volume. This carrier is recommended to be used, for example, with Luminex magnetic beads for multiplexed assays.

### Recommended plate types

The magnetic plate carriers were designed to fit the following plate types (magnets are as close as possible to the bottom of the wells).

- 96-well format: Greiner 96-well  $\mu$ -clear plates with flat bottom wells (Greiner article code: 655096)



#### Note

*Plates which have a raised rim/ring on the underside of the wells may create a larger gap between the magnet and the bottom of the well, thus causing lower bead recovery and poorer results.*



#### CAUTION

**BE AWARE OF THE PRESENCE OF A MAGNETIC FIELD.**

**MAGNETIC FIELDS CAN INTERFERE WITH THE PROPER FUNCTIONING OF CARDIAC PACEMAKERS OR SURGICALLY IMPLANTED MEDICAL DEVICES. ALL PERSONS ENTERING MAGNETIC FIELD ENVIRONMENTS SHOULD BE SCREENED CAREFULLY AND, IF NECESSARY, PROHIBITED FROM ACCESS. KEEP ALL MAGNETIC OR FERROUS OBJECTS, WATCHES, CREDIT CARDS OR OTHER CARDS WITH MAGNETIC STRIPS AWAY FROM INSTRUMENT.**



#### CAUTION

**AVOID TOUCHING THE MBS CARRIERS TOGETHER, BECAUSE THIS CAN CAUSE DAMAGE TO THE PLATE CARRIER OR CAUSE PERSONAL INJURY.**

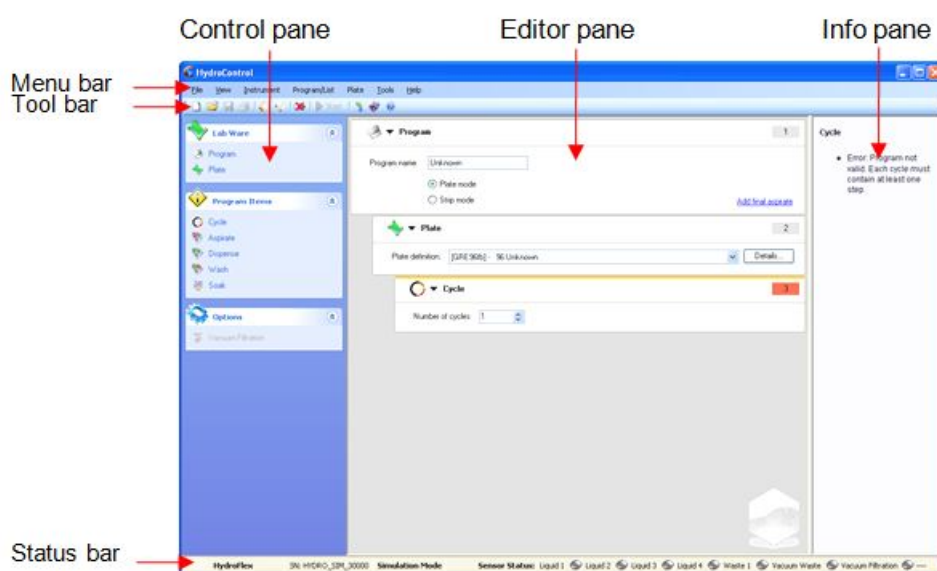


## 3. General

### 3.1 Program Screen Description

The main window of the HydroControl program is divided into three main parts:

- The Control pane on the left, which contains program elements
- The Editor pane in the center contains the current wash program, which contains a program strip, a plate strip, and a cycle strip at start up.
- The Info pane on the right, which contains information about the currently selected strip or errors that exist in the strips and information on how to prevent these errors.



The **main window** consists of the following items which are described in detail in the subsequent chapters:

- Menu bar
- Tool bar
- Status bar
- Control pane
- Editor pane
- Info pane

### 3. General

## 3.2 Menu Description

The HydroControl program has the following menus:












<b>File Menu</b>	
New	Define new programs
Open	Open an existing program
Save	Save the defined program
Save As...	Save the defined program under another name. <b>Note: this will create a new audit trail.</b>
Import Program	Import programs
Print Preview	View the print layout before printing
Print	Print the current program and program parameters
Recent Programs	Lists the last 5 programs opened
Exit	Exits the HydroControl software
<b>View Menu</b>	
Info pane	Show or hide the Info pane
Toolbar	Show or hide the Toolbar
Status bar	Show or hide the Status bar
Audit trail	Opens the Audit Trail dialog box, in which the audit trail can be viewed, printed, and saved.
Signature	Opens the Signature dialog box, in which the signatures can be viewed and a new signature can be added
Collapse all	Collapse all strips
Expand all	Expand all strips
<b>Instrument Menu</b>	
Connect	Opens the Connect to Instrument dialog box, in which the instrument can be connected to the computer.
Disconnect	Disconnects the instrument from the computer
Prime	Opens the Prime dialog box, in which the prime parameters can be selected and the prime procedure can be started
Rinse	Opens the Rinse dialog box, in which the rinse parameters can be selected and the rinse procedure can be started.
Empty Prime Tub	Empties the prime tub
Clean Vacuum Chamber	A special procedure for cleaning the vacuum filtration carrier See chapter Clean Vacuum Chamber for more details on cleaning the vacuum chamber separately.
Stacker Control	Stacker Control is not available with the HYDROFLEX.
Vacuum Filtration	To prepare vacuum to the required level. The program will not be delayed during a run (if this option is installed).
Settings	Opens the Settings dialog box, in which instrument parameters can be viewed. Settings can be saved, opened, and downloaded to the instrument (update). Instrument Menu security can be defined. Bubble sensor parameters can be set. Reminder messages can be switched on or off. LLD (Liquid Level Detection), Vacuum Filtration and Process Control can be switched on or off.

Options	Opens the Options dialog box, in which the current instrument options can be viewed.
<b>Program / List Menu</b>	
Start program from instrument	Opens the Start Program from Instrument dialog box, in which a program can be selected from the Installed Programs list, a plate range can be defined and the program can be started.
Start program from editor	Opens the Select Plate Range dialog box, in which a plate range can be defined and the program currently open in the Editor pane can be started.
Manage Programs	Opens the Manage Programs dialog box, in which the currently installed programs can be viewed. Programs can be saved and downloaded to the instrument, uploaded from the instrument, deleted, or locked.
Manage Lists	Opens the Manage Lists dialog box, in which the currently saved lists can be viewed. Lists can be created, edited, printed, imported, displayed, or downloaded to the instrument. The audit trail of the list can be viewed and signatures can be viewed and new signatures can be added.
<b>Plate Menu</b>	
Manage Plates	Opens the Manage Plates dialog box, in which the currently defined plates can be viewed. Plates (plate definition files) can be downloaded to the instrument, uploaded from the instrument, deleted, edited, created, or locked.
<b>Tools Menu</b>	
Select Language	Choose the appropriate language for the software and the instrument.
Change User	Change user by entering new user name and password.
User Administration	Users and groups can be added, edited or disabled and user rights can be defined.
Options Auto Login	Select <b>Auto Login</b> if the user wants to start HydroControl software without entering username and password.
<b>Help Menu</b>	
Contents	Opens the Contents view of the Help file for the HydroControl software
Index	Opens the Index function of the Help file for the HydroControl software
Search	Opens the Search function of the Help file for the HydroControl software
About	Lists the version numbers of the components of the currently installed HydroControl program

## 3.3 Toolbar Description

The program has the following toolbar:

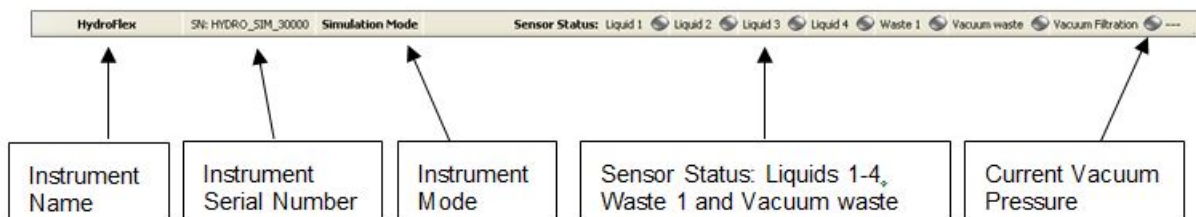


Button	Explanation
	Opens a new program (with no defined steps)
	Opens an existing program
	Saves an existing program
	Prints information about the instrument, software, and the program currently defined in the Editor pane using the default printer. This includes <b>General</b> information such as the HydroControl software version number and Instrument Serial Number, <b>Audit trail</b> comments, <b>List of Signatures</b> , <b>Program Parameters</b> , and <b>Plate Parameters</b> . See 3.13 Printing Programs for a sample printout.
	Expands all program strips
	Collapses all program strips
	Connects instrument / Disconnects instrument
	Starts the program currently open in the Editor pane
	Opens the Prime dialog box
	Opens the Rinse dialog box
	Opens the Help file



## 3.4 Status Bar Description

The status bar provides the **Instrument Name**, **Instrument Serial Number**, **Instrument Mode**, and the **Sensor Status** and the current vacuum pressure.



### 3.4.1 Sensor Status

The sensor status is only active if the LLD option (Liquid Level Detection) or the Vacuum Filtration option is installed and the sensors are activated (see 2.3 Instrument Settings). The "lights" appear gray if the option is not installed.

#### LLD Option:

##### Liquids 1-4

- light is green when the bottle is full
- light is red when the bottle is empty


##### Waste 1 and Vacuum waste

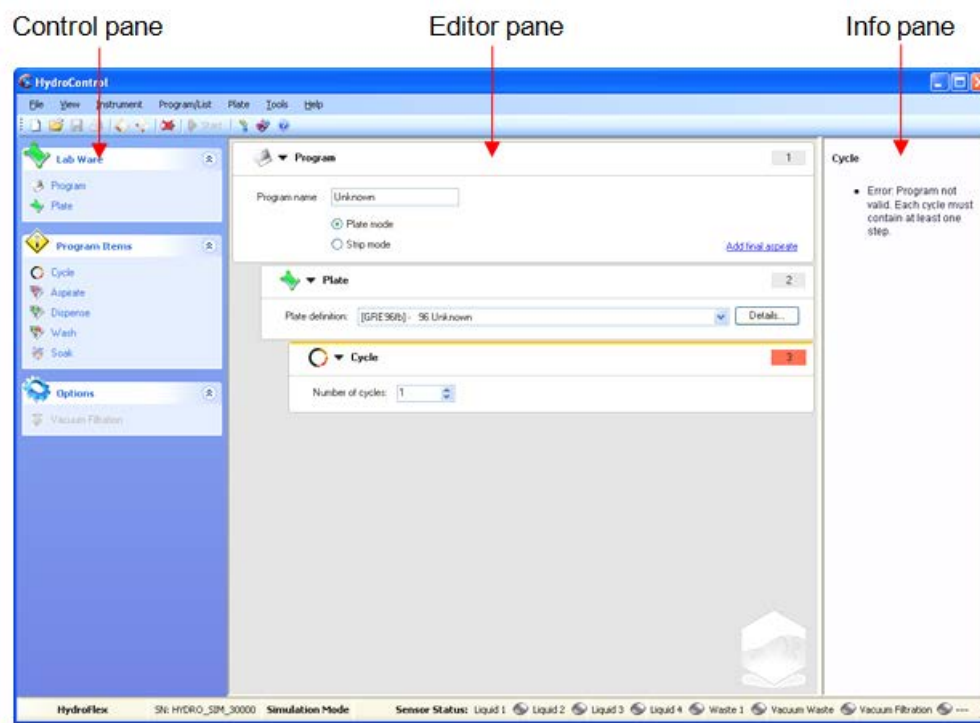
- light is green when the bottle is empty
- light is red when the bottle is full

##### Vacuum Filtration Option:

- light is green when vacuum pressure has reached the user-defined level
- light is red when vacuum pressure has not reached the user-defined level
- the current vacuum pressure appears to the right of the light

## 3.5 Creating and Editing Programs

To define a new program, either click the **New** button  or select **New** from the **File** menu. The main window appears as follows:



By default a program strip, plate strip, and a cycle strip appear in the **Editor** pane when a new program is created.

The **Control** pane contains all of the available elements, which can be inserted into a program in the Editor pane and is divided in three groups: **Lab Ware**, **Program Items**, and **Options** (See also 3.1 Program Screen Description).

### 3.5.1 Program Strip

By default a program strip appears in the **Editor** pane when a new program is created. A program must contain a program strip and only one program strip is allowed per program. **The program strip must be the first element in a program.**



Enter a **Program name** in the text field and select the wash mode:

<b>Plate Mode</b>	Each program step is performed on all of the plate strips of a microplate sequentially, before proceeding to the next step. The entire plate is processed for the defined soaking time.
<b>Strip Mode</b>	The entire wash program is performed on one plate strip (8-way manifold) or two consecutive plate strips (16-way manifold) before proceeding to the next plate strip(s). The plate strip(s) is processed for the defined soaking time, before proceeding to the next plate strip(s).

### Add Final Aspirate

The final aspirate step is inserted to empty the wells at the end of a wash program. It does not belong to any cycle and is only performed once.

The screenshot shows a configuration window titled 'Final aspirate' with a tab indicator '5'. The settings are as follows:

- Mode:  normal,  crosswise
- Z-position: Bottom (dropdown), 0.0 mm (input)
- Time: 4 s (input)
- Head speed: 10 mm / s (input)
- Aspiration rate: 2 (dropdown)

Select the **Mode**: **Normal** or **Crosswise**.

Select the **Z-position**: **Bottom**, **Overflow** or **Custom**.

Select the **Time** to determine how long the aspiration needles stay at the bottom position while the reagent is being aspirated, (1 - 20 seconds).

Select the **Head speed** to determine how fast the needles move into the well, (1 - 20 mm/s).

Select the **Aspiration rate** (1 - 3).

See 3.5.4 Aspirate Step for detailed information.

### 3.5.2 Plate Strip

By default a plate strip appears in the **Editor** pane when a new program is created. A program must contain a plate strip and only one plate strip is allowed per program. **The Plate strip must be placed after the Program strip.**


The screenshot shows a configuration window titled 'Plate' with a tab indicator '2'. The 'Plate definition' dropdown is set to '[GRE96R\_half area] - Greiner 96 Flat Transparent' and there is a 'Details...' button to its right.

Select the plate type from the **Plate definition** drop-down list. Click the **Details** button to view the plate parameters of the selected plate type.

See 3.15 Editing Plate Parameters for details about defining custom plate types.

### 3.5.3 Program Cycles

By default a cycle strip appears in the **Editor** pane when a new program is created.

To insert a cycle strip, select the cycle icon  from the **Control** pane and drag it to the desired position in the Editor pane and release it. Or double-click the item to place it at the end of the program. **The first Cycle strip must be placed after the Plate strip**, however more than one cycle strip is allowed in a program.

A cycle consists of a number of program steps that are processed sequentially. The entire cycle can be repeated up to 9 times.


The screenshot shows a configuration window titled 'Cycle' with a tab indicator '3'. The 'Number of cycles' dropdown is set to 1.

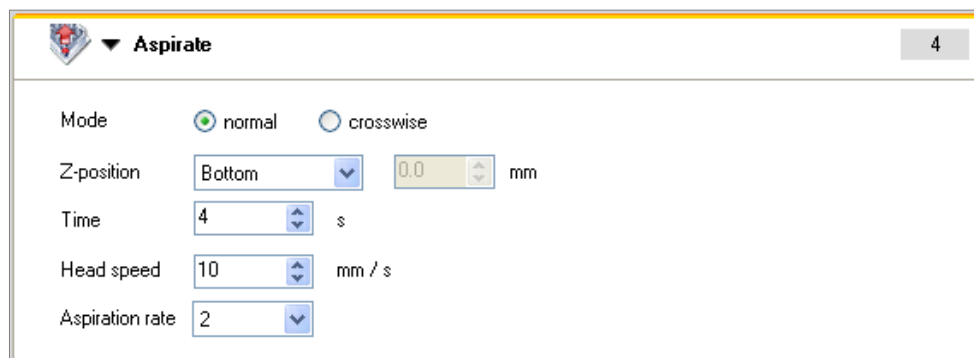
In the **Number of cycles** text box, select the number of times the cycle is to be repeated (1 - 9 times). Cycles cannot be nested, i.e. a cycle cannot contain another cycle.

### 3. General

#### 3.5.4 Aspirate Step

An aspirate step removes liquid from the wells.

To insert an aspirate step, select the aspirate step icon  **Aspirate** from the **Control** pane and drag it to the desired position in the program window and release it. Or double-click the item to place it at the end of the program.



Select the aspirating **Mode: Normal** or **Crosswise** (see **Aspirating Mode** below for a detailed description).

Select the **Z-position: Bottom, Overflow** or **Custom**.

##### **Overflow Position:**

The aspirating needle is positioned slightly above the rim of the well in accordance with the defined plate type (\*.pdfx file).

##### **Bottom Position:**

The aspirating needle is set at the deepest position inside the well in accordance with the defined plate type (\*.pdfx file).

##### **Custom Position:**

The aspirating needle is positioned at a user-defined distance. When **Custom** is selected, the dispensing will be performed at this user-defined Z-position. Custom Z-positions cannot be saved in the plate definition (\*.pdfx file).

In the **Time** area, select how long the aspiration needles stay at the bottom position while the reagent is being aspirated, (1 - 20 seconds).

In the **Head speed** area, select how fast the needles move into the well (1 - 20 mm/s).

Select an **Aspiration rate** from the drop-down list (1 - 3).

#### Aspirating Modes

To improve wash efficiency and to reduce the residual volume, the manifold must be positioned so that the aspirating needles are correctly positioned in the wells for round-bottom, v-shaped bottom, or flat-bottom well microplates.

##### **Normal Aspiration Mode**

For round-bottom or v-shaped bottom wells, the aspirating needles are placed in the middle of the wells. Only one aspiration position can be selected.

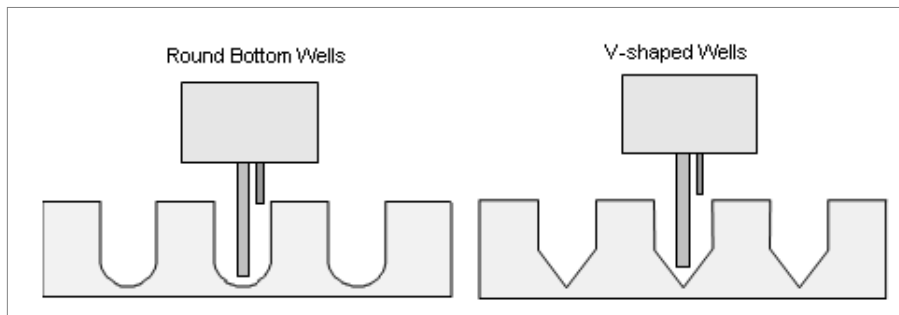


Fig. Aspirating Positions

### Crosswise Aspiration Mode

With flat bottom wells, the instrument can perform crosswise aspiration. The aspirating needles are set at two positions on the bottom of the wells (front edge and back edge).

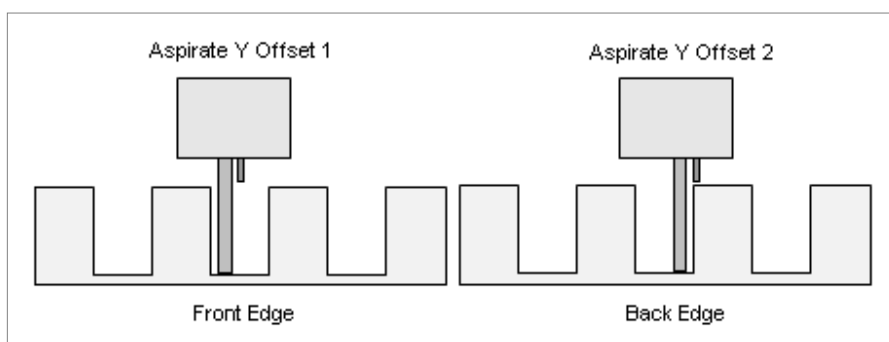

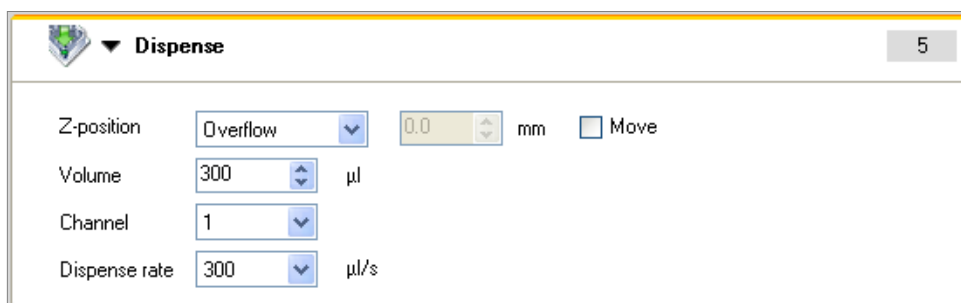


Fig. Crosswise Aspiration for Flat Bottom Wells

## 3.5.5 Dispense Step

A dispense step fills the wells with liquid.

To insert a dispense step, select the dispense step icon  **Dispense** from the **Control** pane and drag it to the desired position in the program window and release it. Or double-click the item to place it at the end of the program.



Select the **Z-position**: **Bottom**, **Overflow** or **Custom**.

#### Overflow Position:

The aspirating needle is positioned slightly above the rim of the well in accordance with the defined plate type (\*.pdfx file).

#### Bottom Position:

The aspirating needle is set at the deepest position inside the well in accordance with the defined plate type (\*.pdfx file).

### 3. General

#### Custom Position:

The aspirating needle is positioned at a user-defined distance.

When **Custom** is selected, the dispensing will be performed at this user-defined Z-position. Custom Z-positions cannot be saved in the plate definition (\*.pdfx file).

When z-position **Custom** or **Overflow** is selected, the **Move** button becomes available. Move is not available for z-position **Bottom**. Recommended for cell and MBS applications.

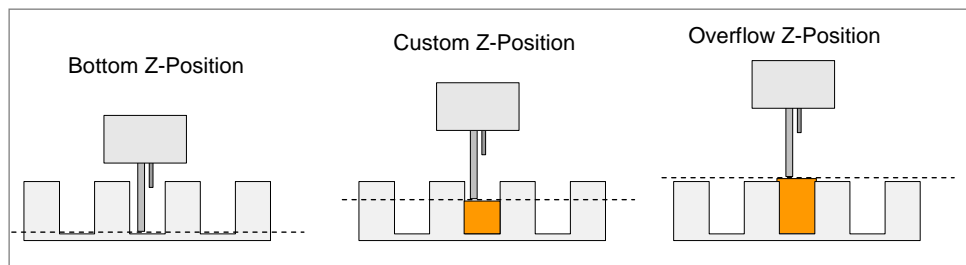


Fig. Diagrams of wash head z-positions


In the **Volume** area, select the volume of liquid to be dispensed (50 - 400 µl in steps of 10 µl).

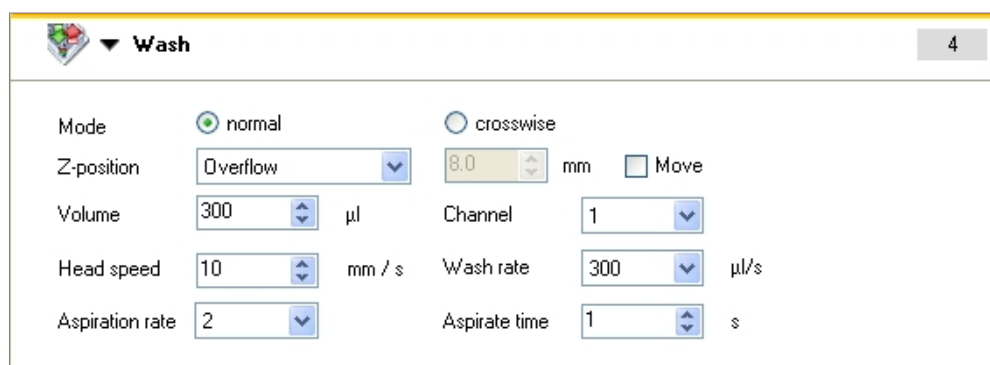
In the **Channel** area, select which channel is to be used, (1 - 4) depending on the instrument configuration and settings.

Select the **Dispense rate: Drip Mode, 200, 250, 300, 400, or 500 µl/s**

### 3.5.6 Wash Step

Liquid is dispensed and aspirated simultaneously creating a circular flow with a maximum volume of 3000 µl in one wash step for increased wash efficiency.

To insert a wash step, select the wash step icon  from the list of available **Program Items**, drag it to the desired position in the program window and release it. Or double-click the item to place it at the end of the program.



Select the aspirating **Mode: Normal** or **Crosswise** (see chapter 3.5.4 Aspirate Step).

Select the **Z-position: Bottom, Overflow** or **Custom**.

#### Overflow Position:

The aspirating needle is positioned slightly above the rim of the well in accordance with the defined plate type (\*.pdfx file).

#### Bottom Position:

The aspirating needle is set at the deepest position inside the well in accordance with the defined plate type (\*.pdfx file).

#### Custom Position:

The aspirating needle is positioned at a user-defined distance.

When **Custom** is selected, the wash step will be performed at this user-defined Z-position. Custom Z-positions cannot be saved in the plate definition (\*.pdfx file). When z-position **Custom** or **Overflow** is selected, the **Move** button becomes available. Move is not available for z-position **Bottom**. Recommended for cell and MBS applications.

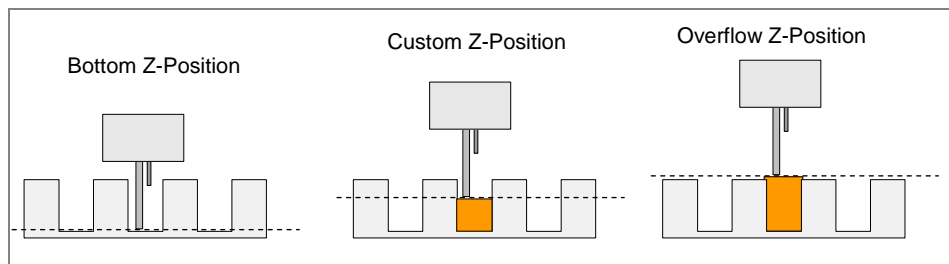


Fig. Diagrams of wash head z-positions

In the **Volume** area, select the volume of reagent to be dispensed: 50 - 3000 µl in steps of 50 µl.

In the **Channel** area, select which reagent is to be dispensed, (1 - 4) depending on instrument configuration.

In the **Head speed** area select the speed (how fast the needles move down: 1 - 20 mm/s).


Select the **Wash rate: Drip Mode, 200, 250, 300, 400, or 500 µl/s**

Select an **Aspiration rate** from the drop-down list (1 - 3).

In the **Aspiration time** area, select how long the aspiration needles stay at the bottom position while the reagent is being aspirated, (1 - 20 seconds).

### 3.5.7 Soak Step

During a soak step the liquid remains in the wells for the set time (with or without shaking).

To insert a soak step, select the soak step  from the **Control** pane, drag it to the desired position in the program window and release it. Or double-click the item to place it at the end of the program.

In the **Time** area enter the required soaking time (0 – 60 min and 0 – 59 seconds).



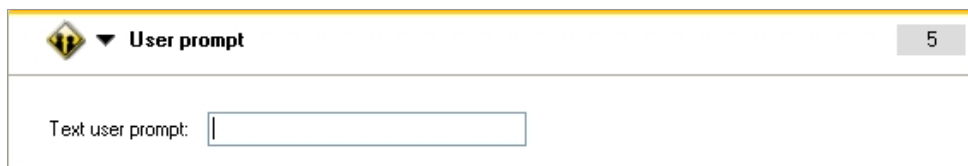
**Note**  
*If the soak time is very short, select strip mode to ensure that the soak time is the same across the plate.*

If the plate is to be shaken, select **Shake** and the required Intensity (**Low, Medium, or High**).

3. General

3.5.8 **User Prompt Step**

The **User Prompt** program element informs the operator of the instrument at a certain moment to execute a definite action during the workflow. Up to 16 characters can be used.

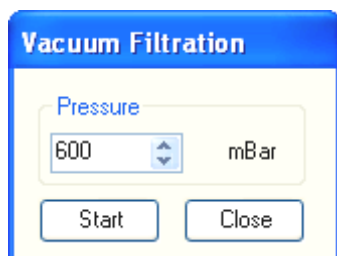


To continue, the operator of the instrument has to press the **OK** button on the display. Please be aware that the command cannot be executed within the software.

3.5.9 **Vacuum Filtration Step**

Vacuum filtration step is used when working with special filtration microplates (e.g. PCR-cleanup). **This option requires the Tecan Vacuum Filtration Station.**

To perform a high vacuum filtration step observe the following order of actions: Enable **Vacuum Filtration** in the settings menu (see chapter 2.3 Instrument Settings). Then select **Vacuum Filtration** in the instrument menu to prepare the required vacuum pressure (vacuum range: -150 mBar to -850 mBar).

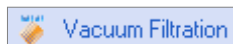


Select the appropriate **Pressure** and click **Start** to build up the vacuum pressure for vacuum filtration.

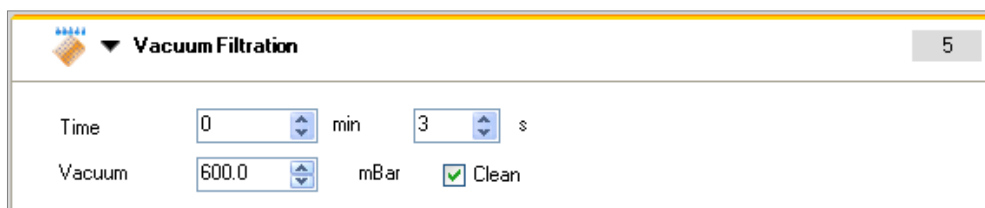


**Note**  
**Prepare Vacuum: the value in the Prepare Vacuum dialog and the value of the vacuum strip should be identical in order to guarantee enough time for filtration.**

To insert a vacuum filtration step, select the vacuum filtration step icon



from the control pane, drag it to the desired position in the program window and release it. Or double-click the item to place it at the end of the program. When Vacuum Filtration is activated, aspiration cannot be selected.



Select the length of **Time** the vacuum filtration should be performed: 0-60 min and 0-59 seconds

Select the **Vacuum** pressure; see 2.3 Instrument Settings for selecting the unit of measurement.



The selectable vacuum range is:

for Option Low Vacuum: between -50 mBar to -150 mBar

for Option High Vacuum: between -150 mBar to -850 mBar

If your instrument is equipped with the **Low Vacuum** option, no Vacuum Prepare procedure is necessary.

Select **Clean** to remove droplets from the bottom of the filtration plate and to remove excess liquid from the plate transport during a filtration procedure.

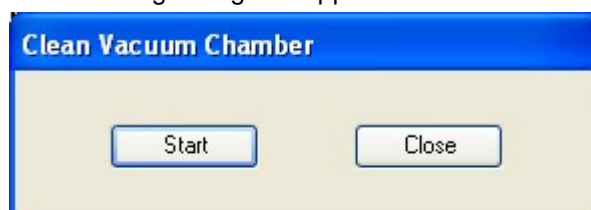
If more than 100 µl are filtrated during a vacuum filtration step, we highly recommend to select the **Clean** command.

### Clean Vacuum Chamber

This procedure is used to thoroughly clean the plate carrier after running a wash program that contains a vacuum filtration step.

Select **Clean Vacuum Chamber** from the **Instrument** menu to start the vacuum chamber rinsing procedure.

The following dialog box appears:



Click **Start** and a message appears requesting that the microplate be removed from the chamber:



Remove the microplate and click **OK** to start the rinsing procedure.

## 3.6 Sample Programs

The following shows a typical wash procedure for working with cells.

1

**Program**

Program name:

Plate mode  
 Strip mode

[Add final aspirate](#)

2

**Plate**

Plate definition:

3

**Cycle**

Number of cycles:

4

**Wash**

Mode:  normal  crosswise  
 Z-position:   mm  Move  
 Volume:   $\mu$ l Channel:   
 Head speed:  mm / s Wash rate:   $\mu$ /s  
 Aspiration rate:  Aspirate time:  s



**Note**

*This example should not be used as a standard wash procedure for cells as it is necessary to adjust all settings according to the cell type used.*

The following shows a typical wash procedure for an ELISA assay.

1

**Program**

Program name:

Plate mode  
 Strip mode

[Add final aspirate](#)

2

**Plate**

Plate definition:

3

**Cycle**

Number of cycles:

4

**Wash**

Mode:  normal  crosswise  
 Z-position:   mm  Move  
 Volume:  µl Channel:   
 Head speed:  mm / s Wash rate:  µl/s  
 Aspiration rate:  Aspirate time:  s

5

**Final aspirate**

Mode:  normal  crosswise  
 Z-position:   mm  
 Time:  s  
 Head speed:  mm / s  
 Aspiration rate:



**Note**

***This example should not be used as a standard wash procedure for processing ELISA assays as it is necessary to adjust all settings according to the cell type used.***

### 3. General

The following shows a typical wash procedure for vacuum filtration:

<b>Program</b> <span style="float: right;">1</span>	
Program name	VacuumFiltration
<input checked="" type="radio"/> Plate mode <input type="radio"/> Strip mode <span style="float: right;"><a href="#">Add final aspirate</a></span>	
<b>Plate</b> <span style="float: right;">2</span>	
Plate definition:	[Mill96PCR] - Millipore Multiscreen PCR 96 Flat <span style="float: right;"><a href="#">Details...</a></span>
<b>Cycle</b> <span style="float: right;">3</span>	
Number of cycles:	1
<b>Dispense</b> <span style="float: right;">4</span>	
Z-position	Overflow <span style="margin-left: 20px;">8.0 mm</span> <input type="checkbox"/> Move
Volume	150 $\mu$ l
Channel	1
Dispense rate	300 $\mu$ l/s
<b>Vacuum Filtration</b> <span style="float: right;">5</span>	
Time	0 min 20 s
Vacuum	-750.0 mBar <input type="checkbox"/> Clean



**Note**

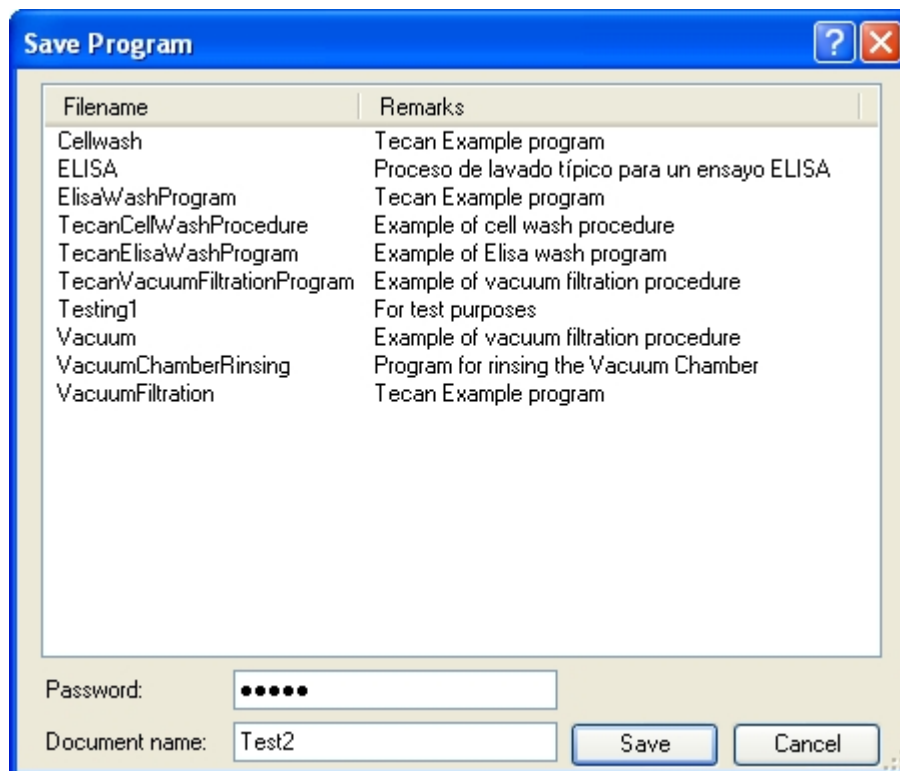
*This example should not be used as a standard wash procedure for vacuum filtration as it is necessary to adjust all settings according to the cell type used.*

## 3.7 Saving a Program

When all the required steps have been defined, save the program by clicking the

**Save** button  or by selecting **Save** from the **File** menu.

The **Save Program** dialog box appears:



Enter the required name for the file in the **Document name** field; the extension **\*.hcp** will be added automatically.

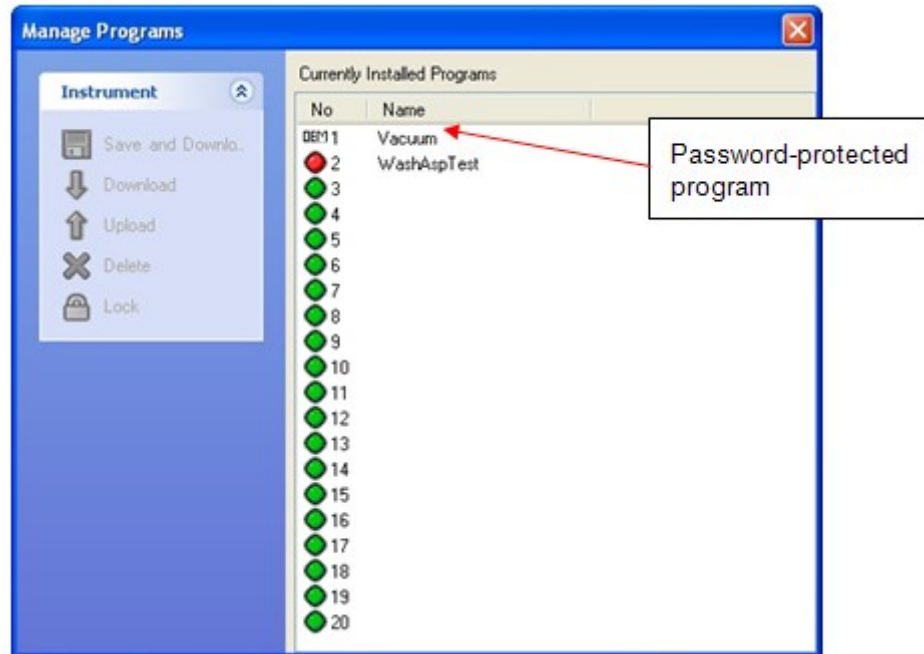
For additional security, a password can be entered optionally when saving a program. The password is not mandatory.

There are three scenarios:

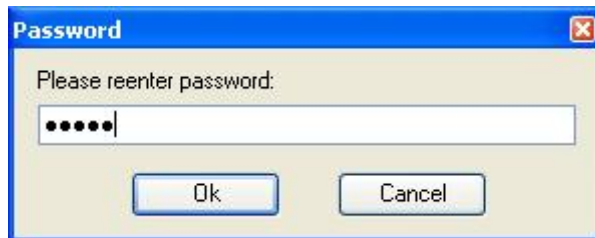
- No password
- Programs can be locked without entering a password in the **Manage Programs** menu.
- The program can be protected by entering a password (5 - 7 characters) when it is saved.

Click **Save** and – if a password has been entered – the **Password** dialog box appears again requesting that the password be re-entered. Enter the password again and click **OK**. Password-protected programs will appear after download as shown in the following screenshot in the **Manage Programs** dialog box:

3. General

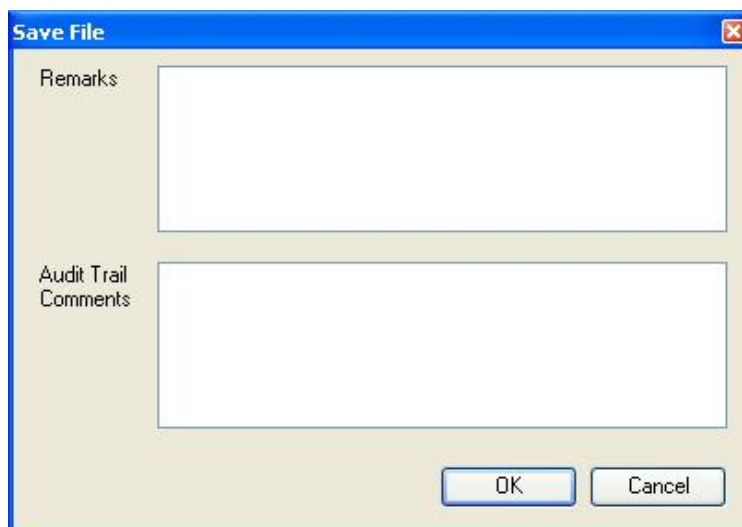


Every time the program is manipulated, e.g. opened, uploaded, saved etc., the password (5 - 7 characters) has to be re-entered.

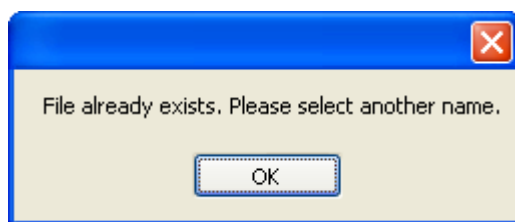


Click **Save** and the **Save File** dialog box appears.

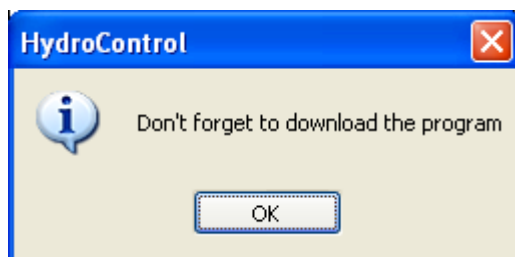
Enter any **Remarks** or **Audit Trail Comments** in the corresponding text boxes and then click **OK** to save program.



The same name cannot be used more than once:



Once the file has been saved, the following reminder appears:




It is important to download the program to the instrument, so that the program can be started from the instrument display (see 3.11 Running a Program). The program can also be started directly from the Editor without being downloaded. Click **OK** to return to the main window.

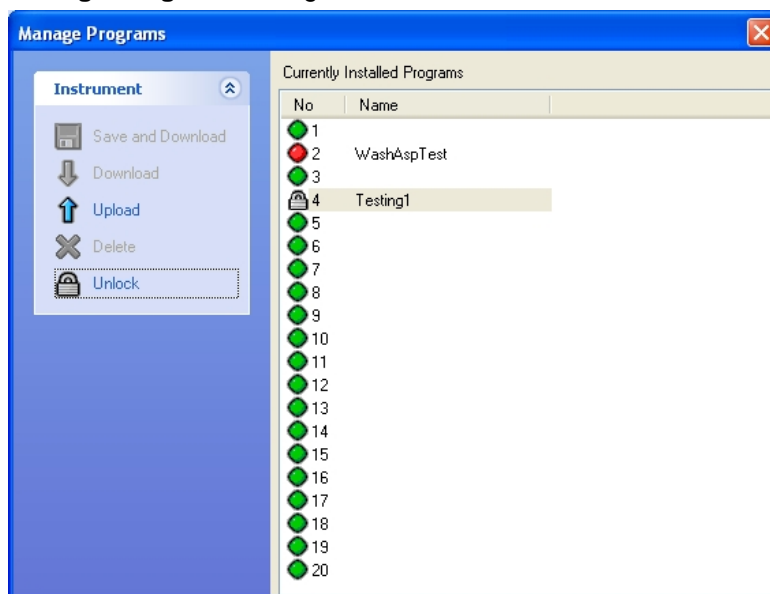
### 3.7.1 Locking Programs

For security purposes, a wash program can be locked, so that only users with enough rights can open them.

Select a wash program from the list of **Currently Installed Programs** and click

**Lock**  **Lock** to lock the program.

Locked programs will appear as follows in the **Defined Programs** list of the **Manage Programs** dialog box:

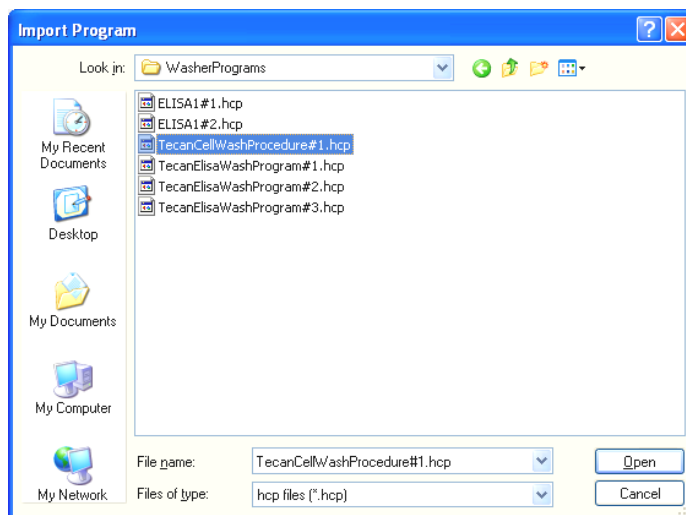


For additional security, the program can also be password-protected (5 - 7 characters).

## 3.8 Importing Programs

Programs can be imported as files to allow the exchange of documents (e.g. send a program via email) between instruments. Programs can only be imported using HydroControl software.


To import a program, select **Import Program** from the **File** menu. The **Import Program** dialog box appears:

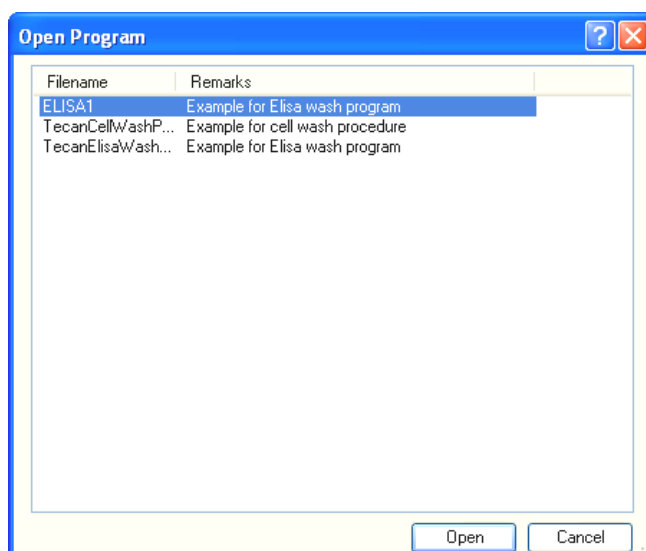


After selecting the program file, click **Open** and the program appears in the Editor pane.

If a program is already open in the Editor pane, a message will appear asking if you would like to save the open program. Save or discard the program by clicking **Yes** or **No**.

## 3.9 Opening a Program

In the **File** menu, click **Open...** or on the toolbar, click the **Open** button  to open an existing program. The **Open Program** dialog box appears:



A list of existing files, which includes the **Filename** and any associated **Remarks** for each program, is shown.

Select a program and click **Open**. The selected program will appear in the **Editor pane**. The file name of the opened program is displayed in the **Main** window title.

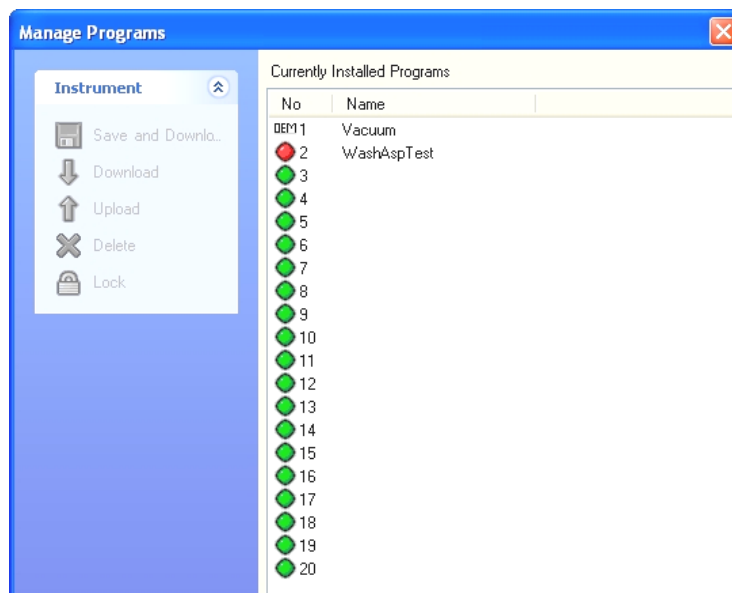


## 3.10 Transferring Programs to and from the Instrument

Before starting either of the following procedures, ensure that the instrument is switched on and is connected to the computer using a suitable connection cable.

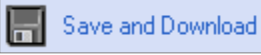
### 3.10.1 Downloading a Program to the Instrument

To download the program currently in the Editor pane to the connected washer, select **Manage Programs** from the **Program/List** menu. The **Manage Programs** dialog box appears:

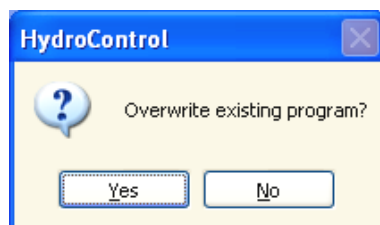


Select a program position in the list of **Currently Installed Programs** to which you would like to download the program currently open in the Editor pane.

Click the **Download** icon  or the

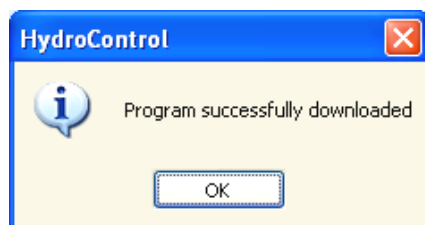
**Save and Download**  icon under **Instrument** on the left side of the dialog box. The name of the program will appear in the list at the selected position.

If a program already exists in this position a warning message appears:



Click **Yes** to overwrite the program on the instrument.

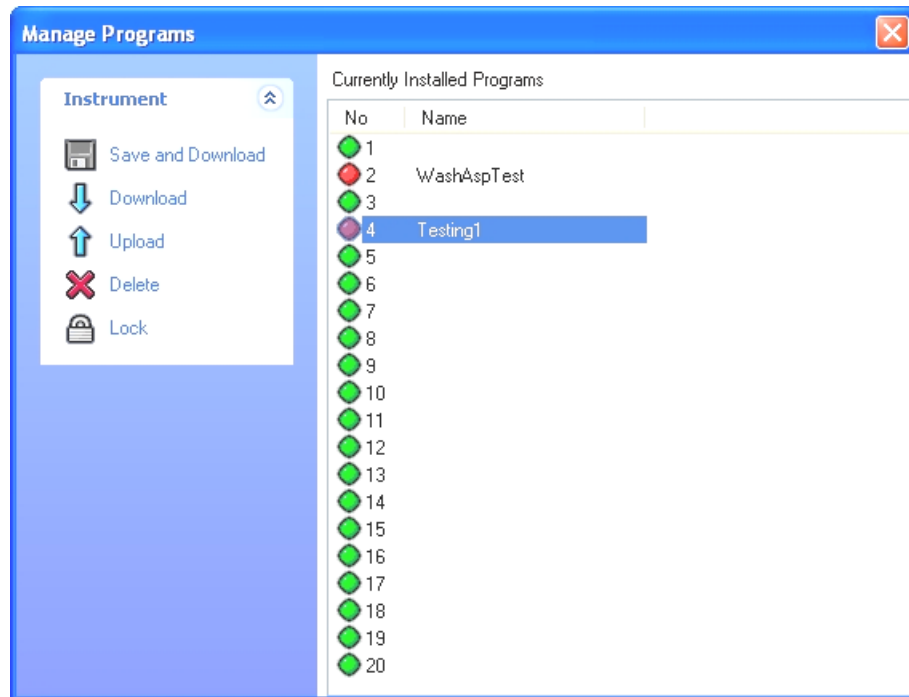
A message appears confirming the download:




### 3. General

#### 3.10.2 Upload Program from the Instrument

To upload a program from the instrument, select **Manage Programs** from the **Program/List** menu. The **Manage Programs** dialog box appears:



Select the program to be uploaded from the list of Currently Installed Programs and click the Upload icon  Upload under Instrument on the left side of the dialog box. The program will appear in the Editor pane.

### 3.11 Running a Program



**Note**  
*Always perform a priming step before starting a program.*



**CAUTION**

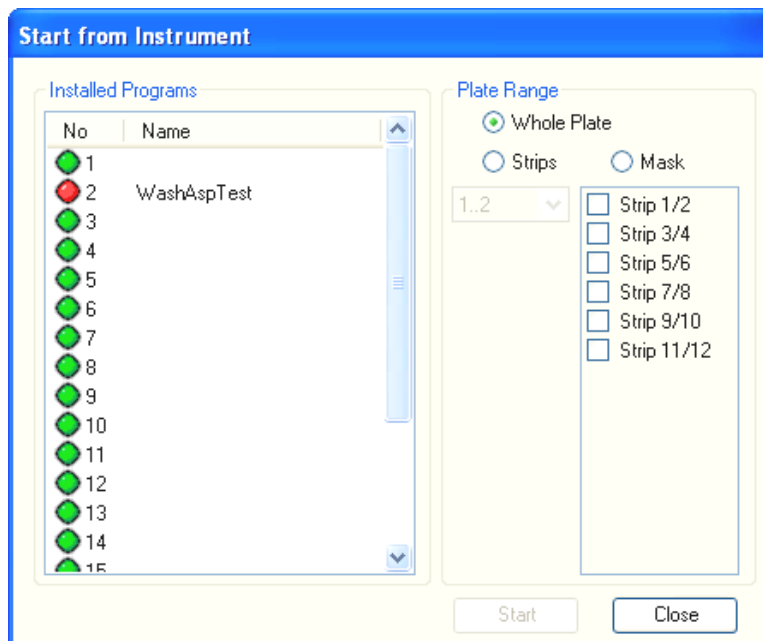
TO AVOID SPILLS WHEN USING STRIP-WELL PLATES, CHECK THAT THE SELECTED NUMBER AND POSITION OF THE STRIP CORRESPONDS TO THE MANIFOLD INSTALLED ON THE HYDROFLEX WASHER AS WELL AS TO THE LAYOUT OF THE STRIP PLATE TO BE WASHED. FOR DETAILS, SEE THE INSTRUCTIONS FOR USE FOR HYDROFLEX WASHER.



**CAUTION**

BEFORE WASHING PROCEDURES ARE STARTED, MAKE SURE THAT THE MICROPLATE POSITION A1 IS INSERTED CORRECTLY.

A program can be started either from the instrument or from the editor. To start a program from the **instrument**, select **Start Program from the Instrument** from the **Program/List** menu and the following dialog box appears:



Select the program from the list of **Installed Programs**.

Select the **Plate Range**:

<b>Whole Plate:</b>	all strips are selected automatically
<b>Strips:</b>	select the group of strips to be processed from the drop-down list (always begins with strip 1 (8-way manifold) or strips 1/2 (16-way manifold))
<b>Mask:</b>	select the individual strips to be processed

### 3. General

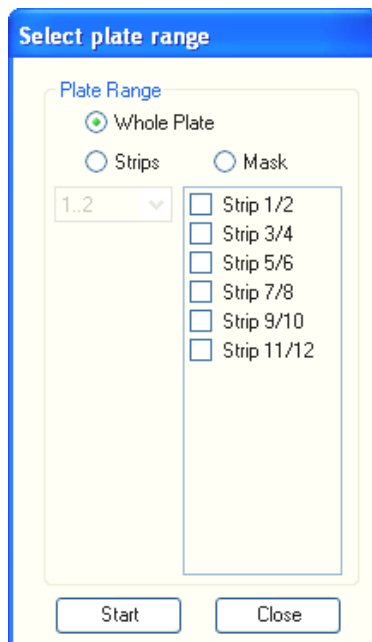
Click **Start** to start the program. The **Program Status** dialog box appears (see **Program Status**, below).

The selected plate range of the last started program is remembered.

To start a program from the **Editor**, select **Start Program from the Editor** from the **Program/List** menu or click the **Start Program from the Editor** button



and the following dialog box appears:



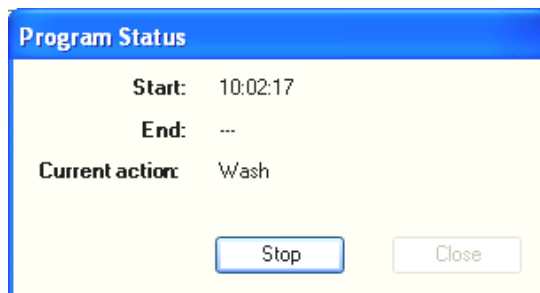
Select the **Plate Range**:

<b>Whole Plate:</b>	all strips are selected automatically
<b>Strips:</b>	select the group of strips to be processed from the drop-down list (always begins with strip 1 (8-way manifold) or strips 1/2 (16-way manifold))
<b>Mask:</b>	select the individual strips to be processed

Click **Start** to start the program. The **Program Status** dialog box appears (see **Program Status**, below).

### Program Status

When **Start** is clicked, the **Program Status** dialog box appears:

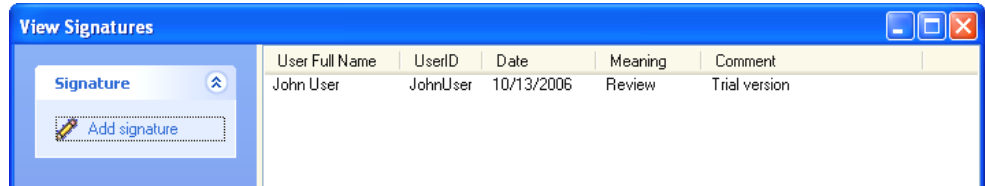


The **Start** time and the **Current action** will be shown while the program is running.

To abort the program, click **Stop**. When the program has ended, the **End** time will be shown. Click **Close** to return to the main window.

## 3.12 Viewing and Signing Programs

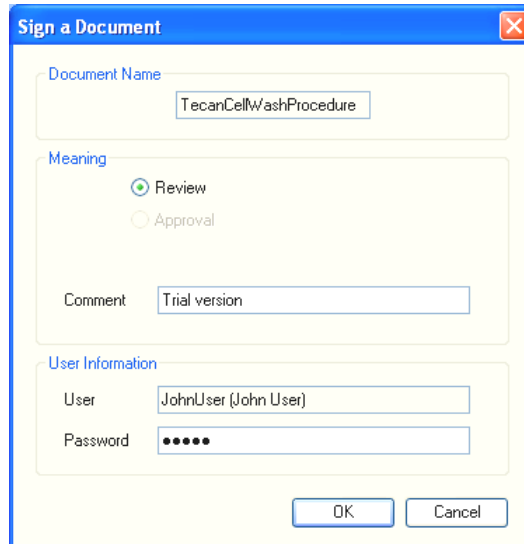
To view the signatures or to add a signature to the program currently open in the Editor pane, select **Signature** from the **View** menu. The following dialog box appears:



A list of all signatures is displayed.

### 3.12.1 Signing Documents

Select **Add signature** to sign the program and the following dialog box appears:



The name of the program is displayed in the **Document Name** group box.

In the **Meaning** group box, the following options are available for the **Meaning** of the signature.

<b>Review</b>	Can be used as part of a release process; program or program list has been checked for errors and is ready for approval.
<b>Approval</b>	Can be used as part of a release process; program or program list has been tested and is approved for use. The approval signature can only be applied if a review signature has already been applied to the record. The <b>Review</b> signature and the <b>Approval</b> signature cannot be signed by the same user.

Any necessary comments can be added in the **Comment** text box.

In the **User Information** group box, the user name of the currently logged in user is displayed. In the **Password** text field, the password of the currently logged in user must be entered to complete the signing procedure.

Click **OK** to confirm the entries and sign the document.



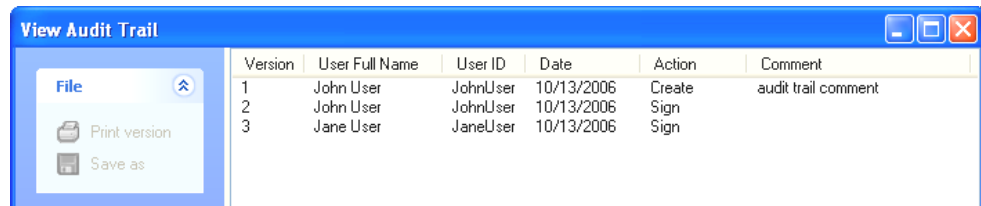
**Note**

*Depending on the standard operating procedures of the company using this software, this signature may be viewed as legally binding, therefore it is very important that the users keep the passwords secret.*

### 3. General

#### 3.12.2 Program Audit Trail

To view the audit trail of the program currently open in the Editor pane, select **Audit Trail...** from the **View** menu.



Whenever a file is created or changed, a record of this action is saved in the **Audit Trail**. Traceability of changes is provided in connection to the user name (User Full Name).


All modifications to the document are shown and listed according to its version number. Each audit trail entry contains the **Version** number, **User Full Name**, **User ID**, **Date** of modification, **Action** (created, modified, or signed) and the audit trail **Comment** (if entered).

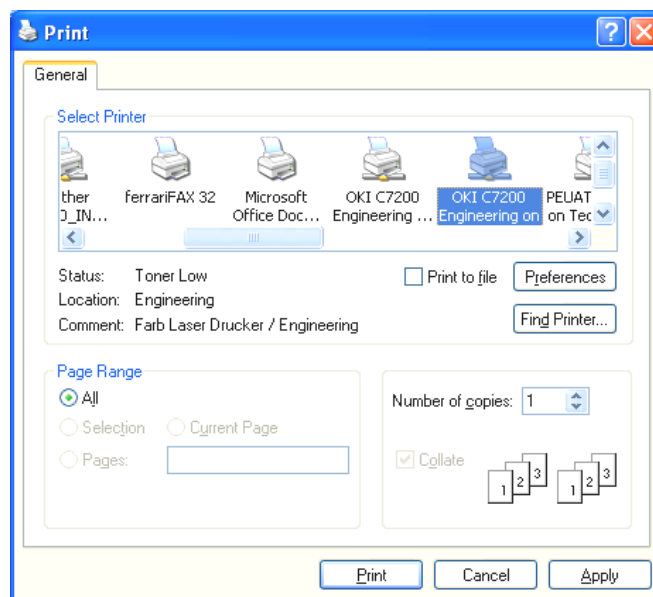
Click **Print version** to view a report of all relevant data for the audit trail.

Click **Save as** to open the **Save Program** dialog box, (see 3.7 Saving a Program). A previous version of the program currently open in the Editor pane can be saved using a different file name. A new audit trail will be created for this program.

## 3.13 Printing Programs

### 3.13.1 Print

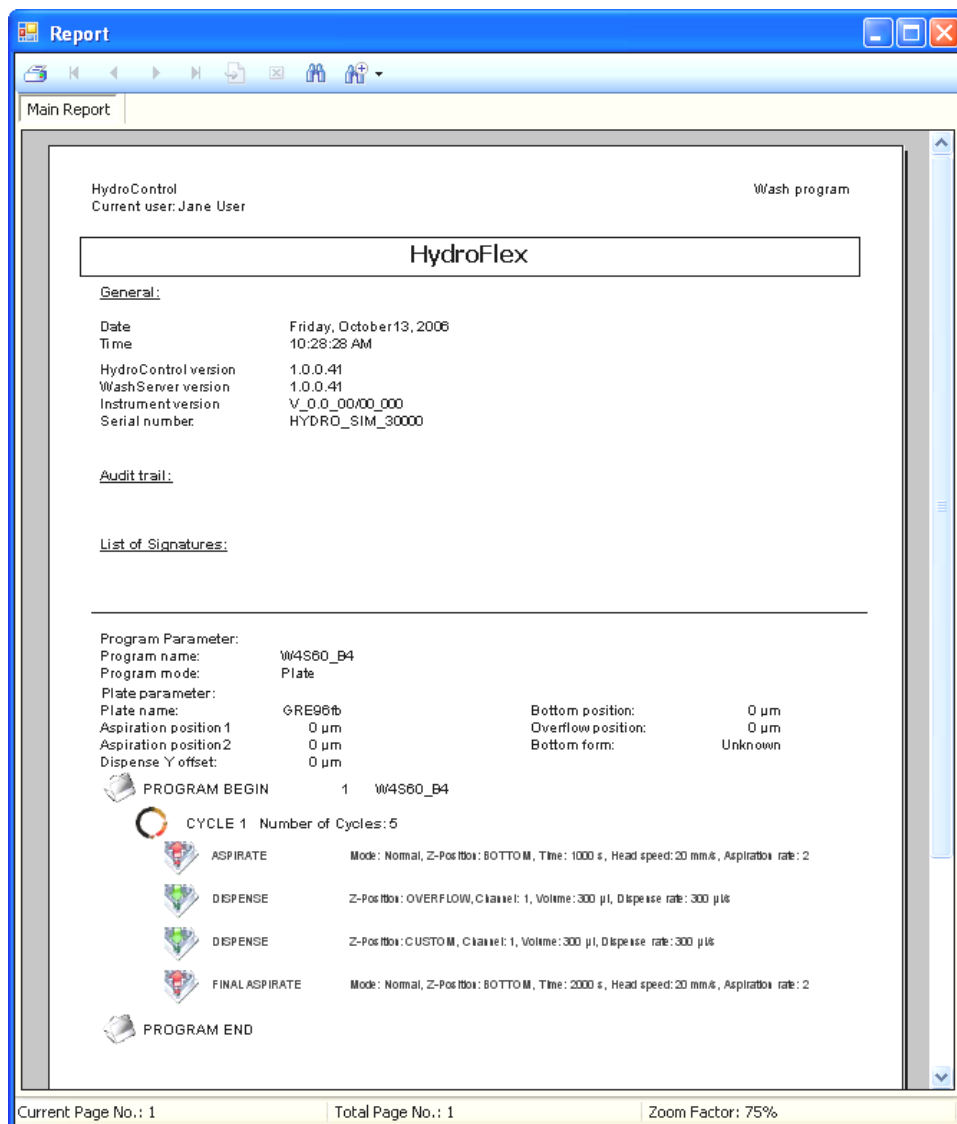
To print the parameters of the active program, click the **Print** button  or select **Print** from the **File** menu. The program parameters will be printed according to the settings made in the **Print** dialog box. The Windows™ **Print** dialog box appears:



Adjust the settings as desired and click **Print**.

### 3.13.2 Print Preview

To check the document before printing, select **Print Preview** from the **File** menu to display the **Report** window:



### 3. General

#### Print Preview Toolbar

The **Report** window has the following toolbar:

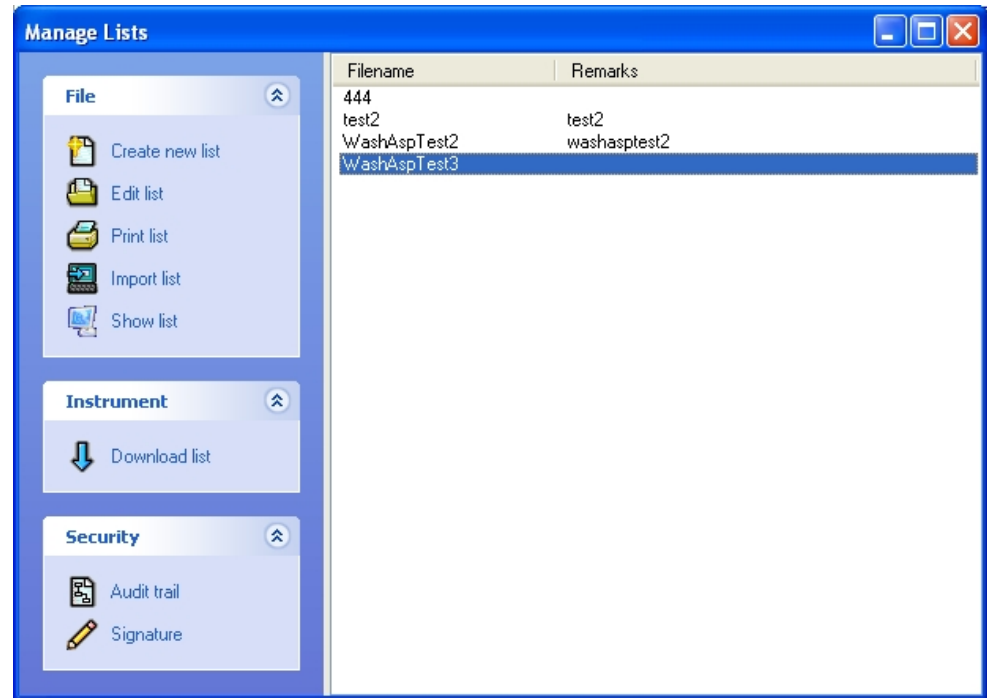


Button	Description
	By clicking the <b>Print</b> button, the Windows™ <b>Print</b> dialog box appears. Adjust the settings as desired and click <b>Print</b> .
	View the first page of the report.
	View the previous page of the report.
	View the next page of the report.
	View the last page of the report.
	By clicking the <b>Go to Page</b> button, the <b>Go to Page</b> dialog box appears: <div data-bbox="587 775 1155 996" data-label="Image"> </div> <p>Enter the number of the page to be viewed and click <b>OK</b>.</p>
	<div data-bbox="587 1055 1144 1270" data-label="Image"> </div>
	By clicking the arrow of the <b>Zoom</b> button, the Zoom menu drops down: <div data-bbox="587 1361 791 1767" data-label="Image"> </div> <p>Select <b>Page Width, Whole Page</b>, one of the displayed zoom percentages or click <b>Customize...</b> to open the <b>Zooming</b> dialog box in which a custom zoom percentage can be entered:  <div data-bbox="815 1561 1323 1758" data-label="Image"> </div> </p>



## 3.14 List Management

Select **Manage Lists** from the **Program/List** menu and the following window appears:



A list is a group of wash programs and plates, which can all be downloaded to the instrument simultaneously.

Defined lists, including the **Filename** and any associated **Remarks** for each list, are displayed.

3. General


3.14.1 Creating and Editing Lists

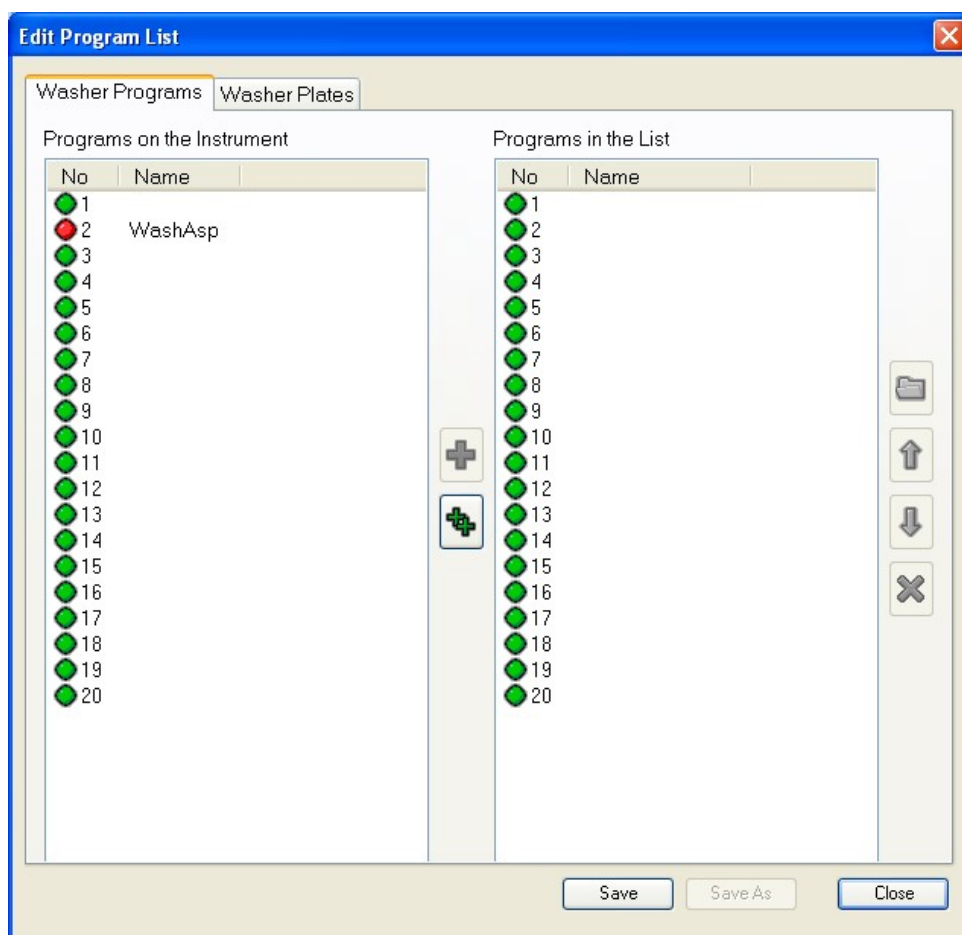


**Note**  
*The wash head of the program must be identical to the currently installed wash head of the instrument.*


To define a new list of programs or to edit an existing list of programs, select **Manage Lists** from the **Program/List** menu and the **Manage Lists** window appears (see 3.14 List Management above).


Click **Create new list**  to make a new list,


or click **Edit list**  to modify an existing list and the following dialog box appears:





A list can contain up to 20 programs.

By pressing the **Add program to list**  button in the middle of the window, selected program(s) are transferred from the left window (programs currently installed on the instrument) to the right window (programs in the list).

Alternatively, press the **Add all programs to list**  button to transfer all available programs to the list. Empty positions in the **Currently Installed Programs** (left) window will not overwrite occupied positions in the **Programs in List** (right) window.

Use the **Remove program from list**  button to delete selected programs from the list (left window only). This will NOT delete any programs from the instrument!

Use the **Add saved program to list**  button to import a list of programs.

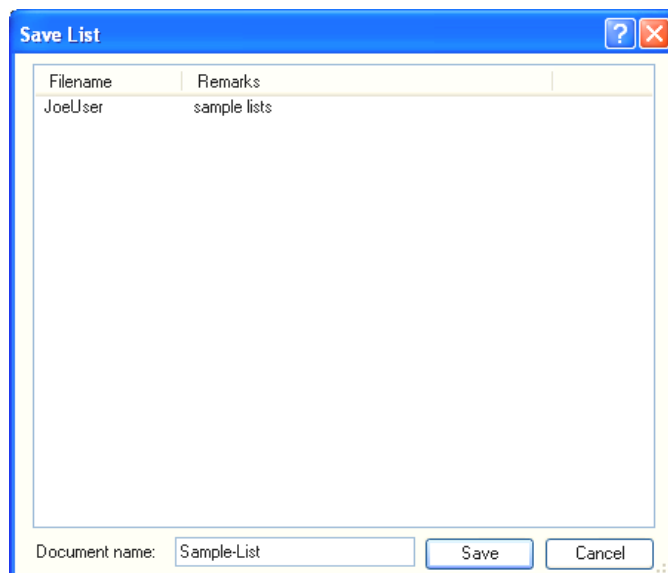
Use the **Move program up**  and **Move program down**  buttons to the right of the right window to move the position of the selected program up or down in the list.

When a list is downloaded to the instrument and it contains empty program positions, the corresponding programs on the washer are not deleted! (I.e. If a list contains only programs on storage places 1 and 3, all other programs in positions 2 and 4 through 20 on the instrument will not be overwritten when the list is downloaded).

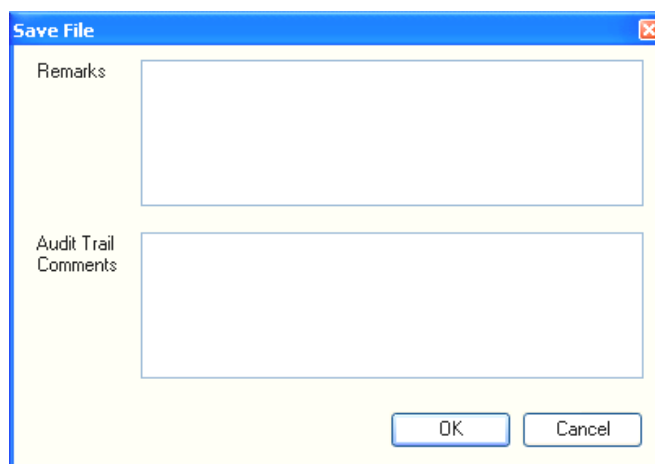
To link programs to plates, switch between the tabs **Washer Programs** and **Washer Plates**.

### 3.14.2 Saving Lists

When the list of programs is complete, it can be saved by clicking **Save** or click **Save as** to save a modified list under a different name. The **Save List** dialog box appears:




Enter a **Document name** and click **Save**. The extension **\*.hcl** will automatically added to the file name. The **Save File** dialog box appears:




### 3. General

Enter any **Remarks** or **Audit Trail Comments** in the corresponding text boxes and then click **OK** to save the list.

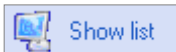
#### 3.14.3 Printing Lists

Click **Print list**  to open the **Report** window, in which the printout can be viewed before printing. See 3.13.2 Print Preview for a detailed description of the **Report** window.


#### 3.14.4 Importing Lists

Previously defined lists can be opened from file to allow the exchange of documents (e.g. send a list via email) between instruments. Lists can only be imported using the HydroControl software. Click **Import list**  to open the **Import List** dialog box in which a list file (\*.hcl) can be browsed for and opened.

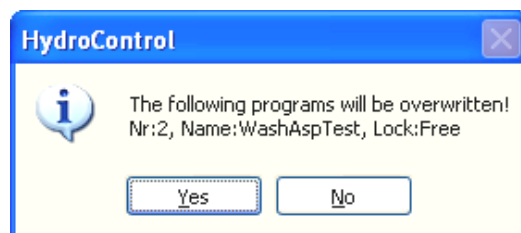
#### 3.14.5 Viewing Lists

Click **Show list**  opens the **Manage List Programs** dialog box, in which the selected list can be viewed, but not modified.

#### 3.14.6 Downloading Lists to the Instrument

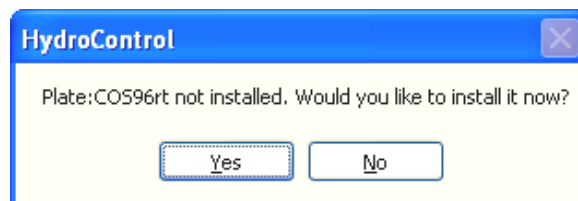
Click **Download list**  from **Manage Lists** dialog box to download a list of programs to instrument.

A warning will appear if program positions in the list are already occupied on the washer:



Click **Yes** to replace the programs.


A reminder appears which lists plate types required by the programs, but are not installed:

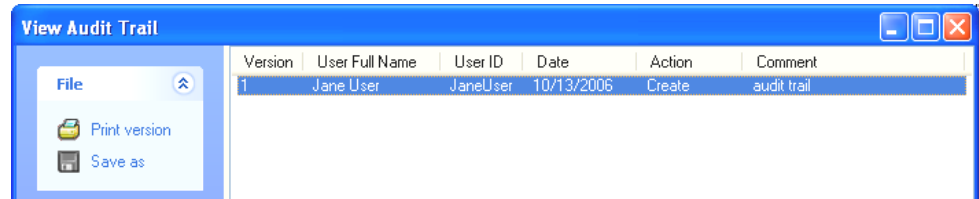


Click **Yes** and the **Manage Plates** dialog box opens, in which the required plate types can be selected for downloading.

A message appears which confirms the successful download of the list to the washer: **List of programs successfully downloaded**. Click **OK** to return to the main window.

### 3.14.7 Audit Trail of Lists


Click **Audit trail**  **Audit trail** to view the audit trail of the list. the following dialog box appears:



Click **Print version** to open the **Report** window, in which the printout can be viewed before printing. See 3.13.2 Print Preview for a detailed description of the **Report** window.

Click **Save as** to save a previous version of the selected list using a different file name. A new audit trail will be created for this list.

### 3.14.8 Signing Lists

Click **Signature**  **Signature** to sign the selected list. See 3.12.1 Signing Documents for a detailed description of signing documents.

## 3.15 Editing Plate Parameters

The HydroControl software contains the parameters of many commonly used microplates. Some of the parameters of these plates can be modified to adapt them to specific needs or a completely new set of parameters can be defined for microplates that are not available in the software.

The instrument can store up to 20 plate definitions, making it easy to run programs which require various types of microplates or the same microplate type with different parameters depending on the tests performed.



### WARNING

**ADJUSTMENT OF HYDROFLEX WASHER TO A CORRESPONDING MICROPLATE:**  
**TO ENSURE PROPER WASH PERFORMANCE IT IS MANDATORY TO ADJUST THE HYDROFLEX WASHER TO THE TYPE / MANUFACTURER OF MICROPLATE OR STRIP-PLATE USED. THIS ALSO APPLIES FOR ANY PRE-DEFINED PLATE FILE, THAT WILL ALWAYS CONTAIN AVERAGE PLATE PARAMETERS ONLY, THAT HAVE TO BE VERIFIED WITH THE CORRESPONDING PLATE TYPE AND IF NECESSARY CORRECTED BEFORE PUTTING THE HYDROFLEX WASHER INTO USE.**  
**IF THIS ADJUSTMENT PROCEDURE IS NOT PERFORMED PROPERLY, THIS MIGHT RESULT IN HIGH LEVELS OF RESIDUAL VOLUME LEFT PER WELL, AS WELL AS IN INSUFFICIENT WASHING OF THE WELLS AND MAY SERIOUSLY AFFECT ASSAY PERFORMANCE.**  
**FOR DETAILS ON HOW TO ADJUST THE HYDROFLEX WASHER TO THE TYPE OF MICROPLATE OR STRIP-PLATE USED, SEE THE INSTRUCTIONS FOR USE FOR THE HYDROFLEX PLATFORM.**



### CAUTION

**BE CAREFUL WHEN USING STRIP-PLATES THAT ALL STRIPS ARE INSERTED AND POSITIONED CORRECTLY, OTHERWISE SPILLING CAN OCCUR AND THE INSTRUMENT MAY BECOME CONTAMINATED.**



#### Note

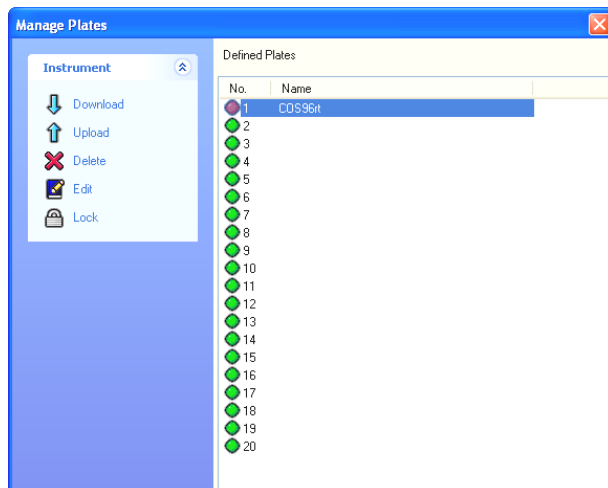
*When plate parameter settings are changed on the instrument using the display, do not forget to save them (upload the .pdfx file) to the HydroControl software via Plate menu / Manage Plate.*



#### Note

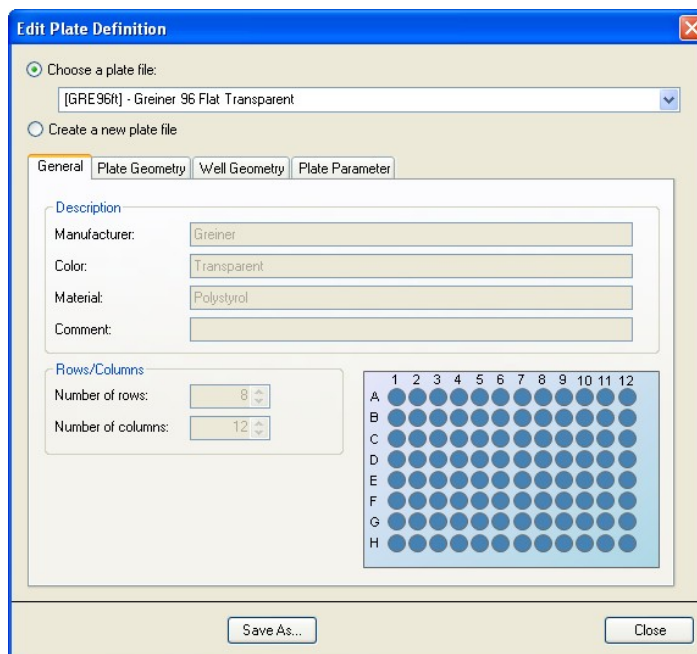
*When plate definition files with the same name are stored on the instrument and in the software, the HydroControl uses the version saved in the software (.pdfx).*

Select **Manage Plates** from the **Plates** menu and the following dialog box appears:



To adjust the parameters of an existing plate type, select the plate from the list of **Defined Plates** or to define parameters for a new microplate type, select an empty position in the list of **Defined Plates** and click **Edit**.

The **Edit Plate Definition** dialog box appears:



Select **Choose a plate file** to modify the parameters of an already defined microplate or select **Create a new plate file** to define parameters for a new microplate type.

### General Tab

For new microplates, it is possible to define the **Description** parameters for the plate on the **General** tab: **Manufacturer**, **Color**, **Material**, and a **Comment** can be added for easy identification.



**Note**

***For the HYDROFLEX Washer, do not change the number of rows and columns (8 rows, 12 columns).***

### 3. General

#### Plate Geometry Tab

When defining new plate types, enter parameters as shown below.

The plate geometry can be defined according to **Size** and **Height**.

#### Plate Size Parameters

Length	Enter the length of the microplate in $\mu\text{m}$ (including the skirt)
Width	Enter the width of the microplate in $\mu\text{m}$ (including the skirt)
Left well position	X-value of A1 distance to middle of well
Right well position	X-value of H12 distance to middle of well
Upper well position	Y-value of A1 distance to middle of well
Lower well position	Y-value of H12 distance to middle of well

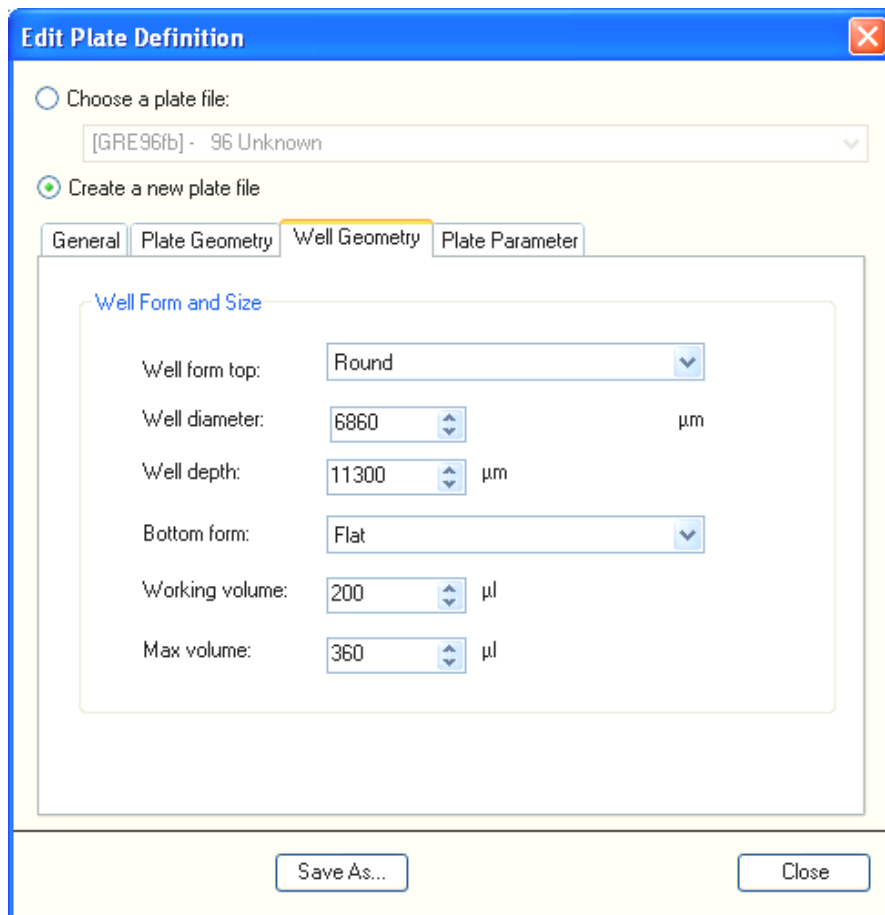
#### Plate Height Parameters

Plate height	Enter the height of the microplate in $\mu\text{m}$ (including the skirt)
Height tolerance	Enter the tolerance of the height measurement distance from upper surface of plate
Height with cover	Enter the height, in $\mu\text{m}$ , of the microplate with a cover on (including the skirt)
Skirt height	Enter the skirt height



Well Geometry Tab

When defining new plate types, enter parameters as shown below.



On the **Well Geometry** tab, the form and size of the wells can be defined:

Well form top	Select the shape of the top of the wells: <b>Rectangle, Round, Square, or Unknown.</b>
Well diameter	Enter the <b>Length</b> and <b>Width</b> of the wells for rectangular and square wells or the <b>Diameter</b> for round wells (in µm).
Well depth	Enter the depth of the wells in µl.
Bottom form	Select the shape of the bottom of the wells: <b>Flat, Round, V-shaped, or Unknown.</b>
Working volume	Enter the working volume of the wells in µl.
Max volume	Enter the maximum volume of the wells in µl.

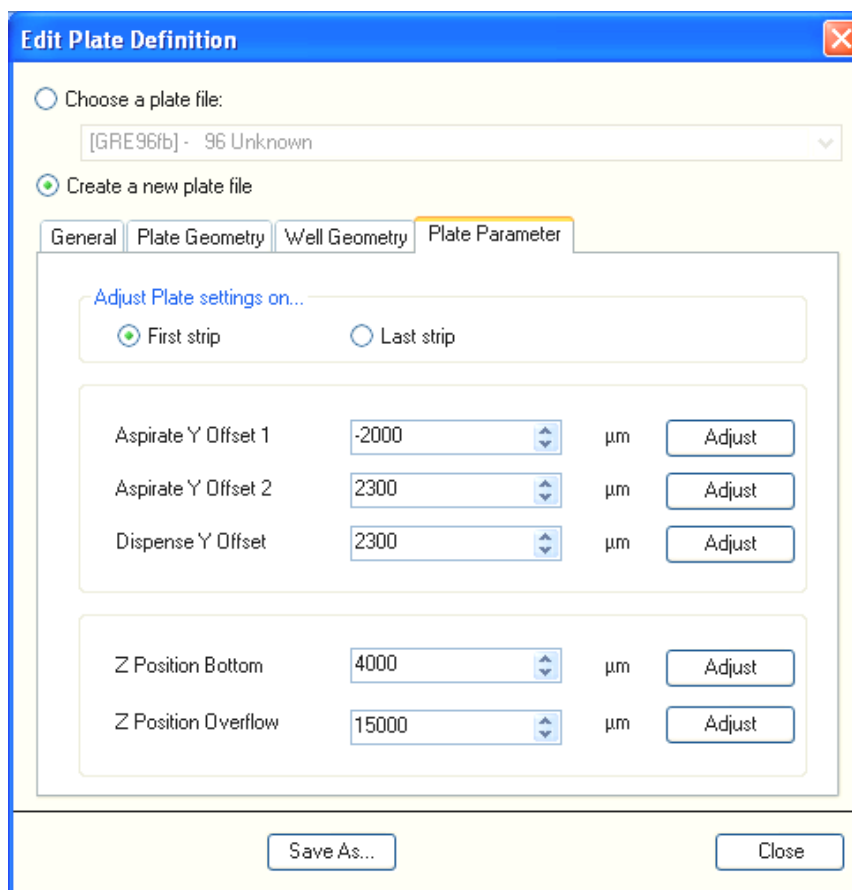


**Note**  
*Information about the well and plate geometry is available from the manufacturer.*

### 3. General

#### Plate Parameters Tab

When defining new plate types, enter the default values of the Greiner 96-well flat-bottom transparent microplate, if any values are set to zero.



On the **Plate Parameters** tab, the aspiration offsets, dispensing offset, and Z-positions can be defined.

Aspirate Y Offset 1	The position of the aspiration needles in which aspiration is started
Aspirate Y Offset 2	The position of the aspiration needles in which aspiration is finished (Only selectable for 96-well flat-bottom plates)
Dispense Y Offset	The position of the dispensing needles in which dispensing occurs (restricted by length of aspirating needles)
Z Position Bottom	The position of the aspiration needles in which bottom washing occurs
Z Position Overflow	The position of the aspiration needles in which overflow washing occurs

Click **Adjust** and the wash head moves to the defined position.

When changing the offsets, the user has to confirm the new values by pressing **OK** on the instrument's display.

Select whether these positions will be determined according to the **First strip** or **Last strip**.

Plate settings edited on the instrument's display are saved to the instrument. When working with the HydroControl Software the edited plate file (\*.pdfx) must be saved to the computer, otherwise the plate settings on instrument and computer may be different.



**Note**  
*Adjust parameters of a filter plate used for vacuum filtration only when vacuum filtration is enabled in the settings menu of the instrument and the standard tray is installed.*

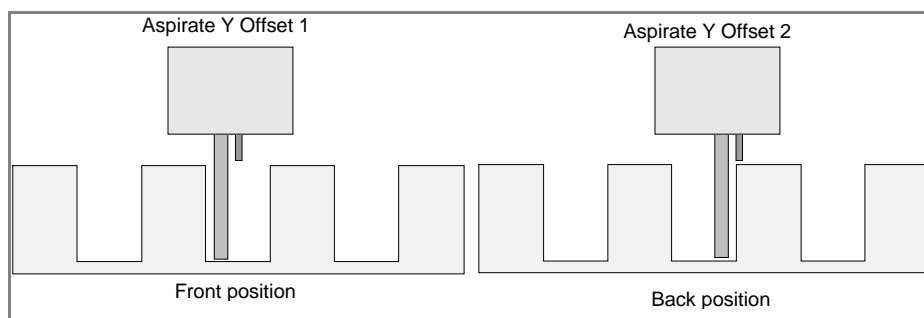


**Note**  
*Make sure that the vacuum transport is mounted when the vacuum filtration option is enabled.*

### 3.15.1 Needle Position Diagrams

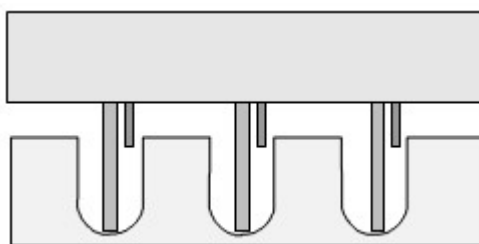
Define wash positions as shown in the diagrams below.

#### Aspiration Positions



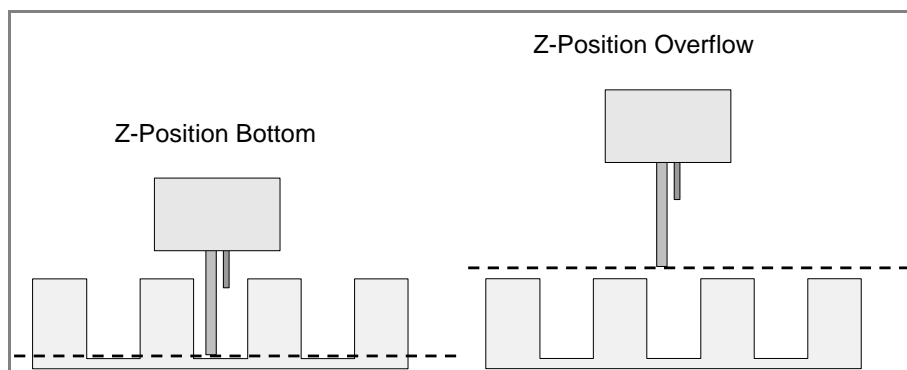
*Aspirate Y Offset Positions*

#### Dispense Position



*Dispense Y Offset Position*

#### Z-Positions

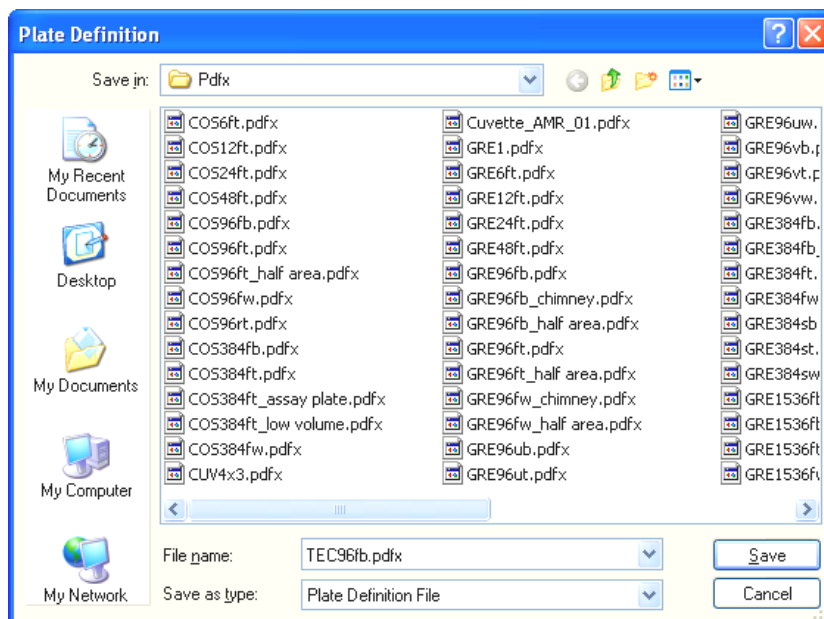


*Z-Positions*

### 3. General

#### 3.15.2 Saving Plate Parameters

Click **Save as** and enter a name for the newly defined plate parameters. Give the plate definition file a descriptive name (e.g. “**Greiner1**”). The extension **\*.pdfx** will automatically be added to the file name.



The plate parameters can now be used when defining a program, by selecting the necessary plate type from the **Plate definition** drop-down list of the **Plate strip**, (see 3.5.2 Plate Strip for more information).



**Note**


*When **plate parameter settings are changed** on the instrument using the display, do not forget to save them (upload the .pdfx file) to the HydroControl software via Plate menu / Manage Plate.*

#### 3.15.3 Locking Plates

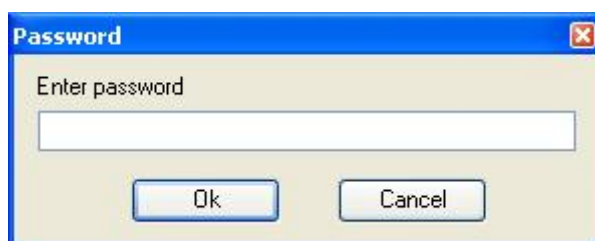
For additional security, a password can be entered optionally when saving a plate definition. The password is not mandatory.

There are three scenarios:

- No password
- Plate definitions can be locked without entering a password in the **Manage Plates** menu.
- The plate can be protected by entering a password (5 - 7 characters) in the **Manage Plates** dialogue.

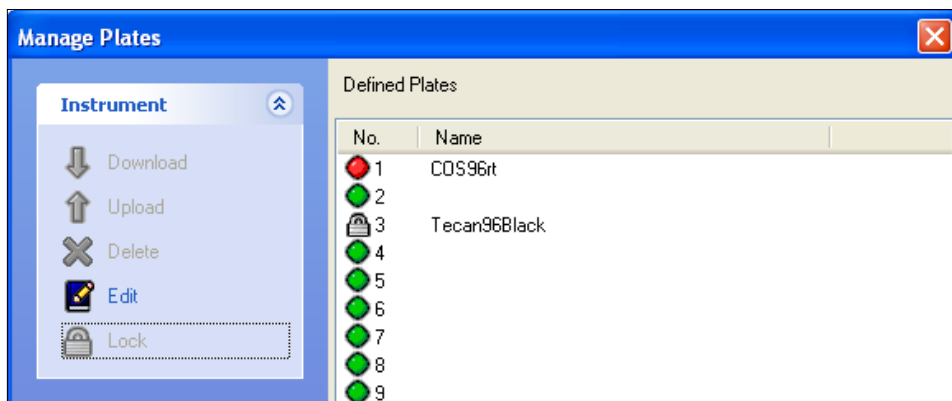
Select a plate from the list of **Defined Plates** and click **Lock**  **Lock** to password-protect (5 - 7 characters) the plate definition file.

The **Password** dialog box appears:



**Regular Security (Lock)**

For regular security, do not enter a password and click **OK**. Only users with enough rights can open plates locked in this way. Locked plates will appear as follows in the **Defined Plates** list of the **Manage Plates** dialog box:

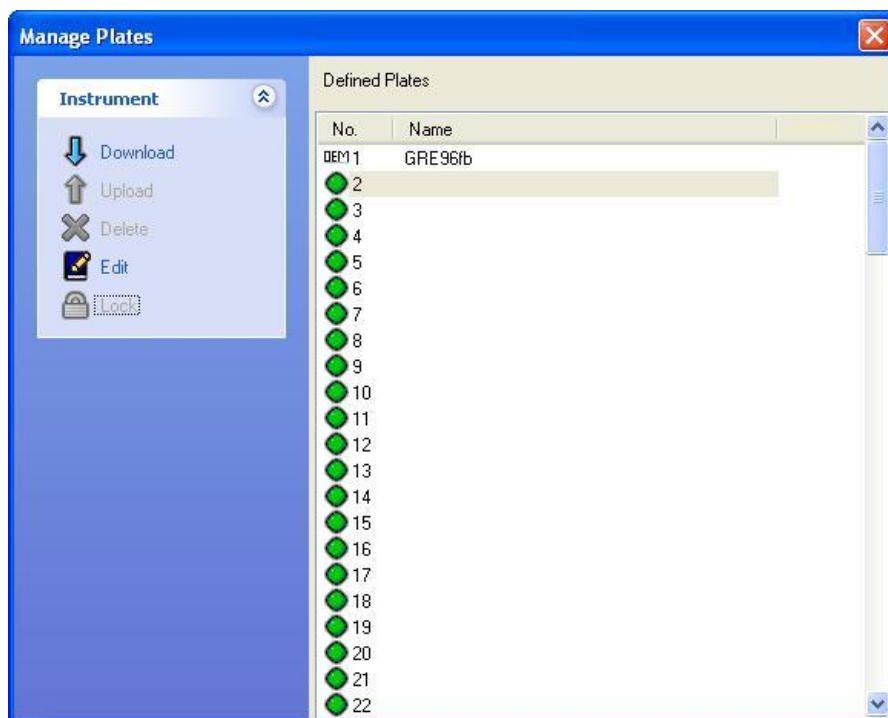


**High Security (Password, OEM Lock)**

For higher security, enter a password (5 - 7 characters) and click **OK** and the **Password** dialog box appears again requesting that the password be reentered. Enter the password again and click **OK**.



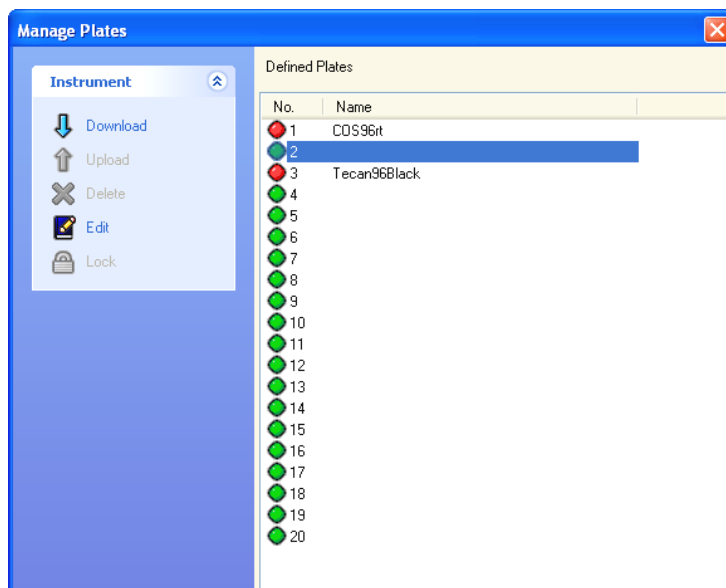
Password-protected plates will appear as follows in the **Defined Plates** list of the **Manage Plates** dialog box:



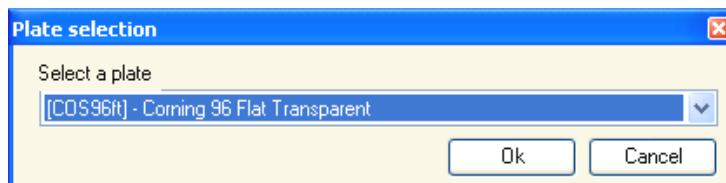
### 3. General

#### 3.15.4 Downloading Plate Definition Files

To download plate definition files to the instrument, select **Manage Plates** from the **Plate** menu and the following dialog box appears:



Select an empty position or choose to overwrite a filled position and click **Download**. The following dialog box appears:



Select a **plate** from the drop-down list and click **OK**. The plate definition file will be downloaded to the instrument and the following message appears to confirm the successful download.



**Note**

***When plate parameter settings are changed on the instrument using the display, do not forget to save them (upload the .pdfx file) to the HydroControl software via Plate menu / Manage Plate.***

## 3.16 Priming



### WARNING

**BEFORE THE INSTRUMENT CAN BE USED, ALL DISPENSING CHANNELS NEEDED FOR THE WASH STEP MUST BE PRIMED TO FILL THE DISPENSE SYSTEM WITH THE REQUIRED LIQUID.**

**IF THE PRIMING PROCEDURE IS NOT PROPERLY PERFORMED, THIS MAY RESULT IN INSUFFICIENT WASHING OF THE WELLS AND MAY SERIOUSLY AFFECT ASSAY PERFORMANCE.**

**ENSURE THAT THE BOTTLE OF PRIMING SOLUTION IS ALWAYS FULL AT THE BEGINNING OF THE PRIMING PROCEDURE AND CHECK THAT THE INLET FILTERS IN THE LIQUID TUBES ARE CLEAR.**



### CAUTION

**ENSURE THAT THE DISPENSING AND ASPIRATION PUMPS ARE NOT RUN FOR LONGER THAN A FEW MINUTES WITHOUT LIQUID OR THEY WILL BE DAMAGED.**



### CAUTION

**DO NOT USE THE INSTRUMENT TO ASPIRATE OR DISPENSE ANY ACIDIC SOLUTIONS AS THIS COULD DAMAGE THE INSTRUMENT.**



### WARNING

#### WASTE BOTTLE - FILLING LEVEL


**MAKE SURE THAT THE LIQUID LEVEL OF THE WASTE BOTTLE IS ALWAYS KEPT BELOW THE MAXIMUM LEVEL INDICATED ON THE BOTTLE TO AVOID POTENTIAL OVERFLOW. AS THE CONTENTS OF WASTE BOTTLE ARE POTENTIALLY INFECTIOUS, WEAR PROTECTIVE CLOTHING (GLOVES, LAB COAT AND SAFETY GLASSES) WHEN EMPTYING / HANDLING A WASTE BOTTLE. FOLLOW LOCAL STANDARD OPERATING PROCEDURES ON HOW TO TREAT POTENTIALLY INFECTIOUS MATERIAL FOR DISPOSAL.**

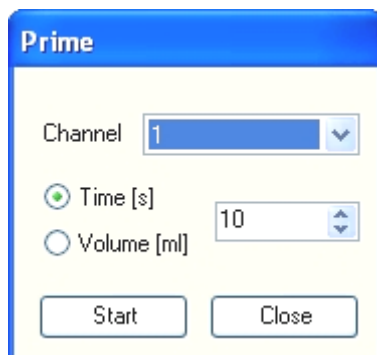
Priming is performed to fill the liquid system of the HYDROFLEX Washer with liquid and to remove all air from the tubes. A priming step must also be performed when switching between buffers.

If different wash buffers are used in a wash program, the instrument performs a prime step automatically.

If the instrument will be left to stand for a longer time, priming must be performed to remove all liquid from the system. For this purpose, remove all tubes from the liquid bottles.

### 3. General

Priming can be performed by selecting **Prime** in the **Instrument** menu or by clicking the **Prime** button . The following dialog box appears:



In the **Channel** area select the **Channel** to be primed (1 – 4) and then adjust the prime **Time** (between 5 and 99 seconds) or the volume (15 – 820 ml).

The lowest time and volume to fill the liquid system completely are 10 seconds or 30 ml.

Click **Start** to start the prime procedure.

Click **Stop** to abort the procedure. When the prime procedure has ended, the **Prime** dialog box close automatically.



**Note**  
*If the priming step is not performed properly, this can seriously influence wash results.*


## 3.17 Rinsing

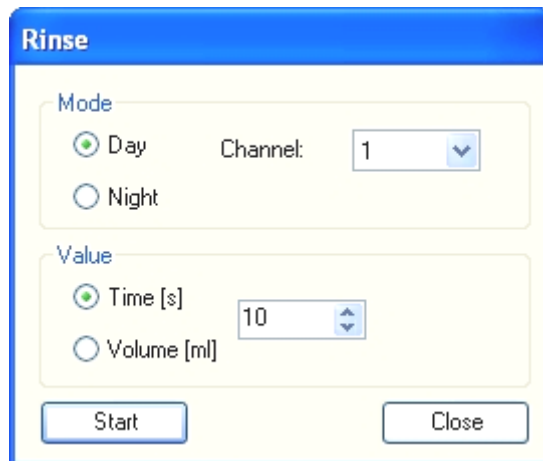
Rinsing is performed to flush the liquid system and to prevent needle blockages. The rinsing procedure should be performed, if the instrument is left to stand or is switched off at the end of operation.

The two rinsing modes are:

<b>Day</b>	Use if the instrument will be left to stand for a short time. When <b>Day</b> is selected, a <b>Time</b> can also be selected (in seconds). <b>Rinse day</b> can be performed with the liquid already in use.
<b>Night</b>	For thorough rinsing and if the instrument will be left to stand for a longer time. When <b>Night</b> is selected the <b>Time</b> cannot be set. <b>Rinse Night</b> must be performed with distilled water only.



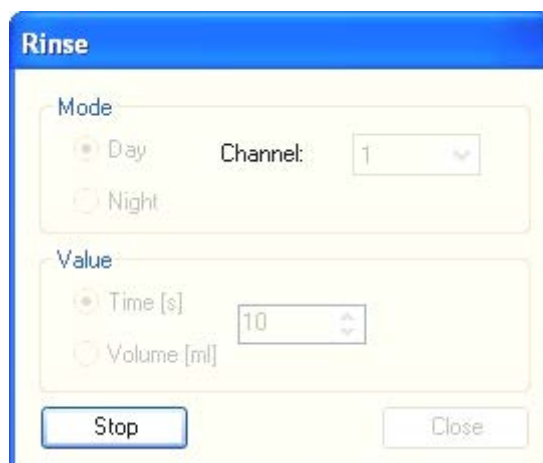
To perform a rinse procedure, select **Rinse** from the **Instrument** menu or click the **Rinse** button  and the following dialog box appears:



Select a **Channel** and a **Mode**.

Select the duration **Time** (5 to 99 seconds) or the volume (15 – 820 ml).

Click **Start** to start the rinse procedure.



Click **Stop** to abort the procedure. When the rinse procedure has finished, the needles of the manifold will remain in the liquid until the user presses **Stop**. Click **Close** to return to the main window during or after the rinse procedure.



**CAUTION**

**RINSING IS THE MOST IMPORTANT DAILY CLEANING PROCEDURE FOR THE HYDROFLEX WASHER AND IS ESSENTIAL TO ENSURE PROPER WASH PERFORMANCE. FOR DETAILS, SEE THE INSTRUCTIONS FOR USE FOR THE HYDROFLEX WASHER.**

### 3.18 Empty Prime Tub

Select **Empty Prime Tub** from the **Instrument** menu to remove the liquid from the prime tub. The manifold will move to the prime tub and the liquid will be aspirated out of the tub.



## 4. User Administration

There are three types of administrators mentioned in this publication:

The **System Administrator** is responsible for any changes made to the computer's operating system. System Administrator rights are necessary to install the HydroControl software on the computer.

The **User Administrator** is responsible for adding users and modifying user rights, adding user roles and modifying user role rights, assigning initial passwords, and changing user administration options within the HydroControl software.

The **Hydro\_Administrator** is a specific User Rights Role within the HydroControl software. A user who has assigned this role has access to all features of the HydroControl software, except for those related to the user administration. See 4.1 User Rights for further information.



### CAUTION

**IT IS RECOMMENDED THAT ANYONE WHO USES THE HYDROCONTROL SOFTWARE HAVE "NORMAL" USER RIGHTS ON THE OPERATING SYSTEM (AND NOT SYSTEM ADMINISTRATOR RIGHTS)!**

### 4.1 User Rights

There are three different default security levels of user rights, the highest level of which is **Hydro\_Administrator**, a user who has assigned this role (security level) has access to all program functions, except for those related to the user administration. The **Hydro\_Application\_Specialist** and **Hydro\_Operator** security levels are increasingly limited.



### Note

*HydroControl offers password protection to prevent misuse of the software and restricts access to parts of the software based on user rights.*

Each right can be assigned or withdrawn from a role by a User Administrator and by default are assigned as stated below.

The default set of rights is based on a typical laboratory environment.



### CAUTION

**USER ADMINISTRATORS HAVE THE RESPONSIBILITY OF MAKING SURE THAT THE SETTINGS (AND ANY MODIFICATIONS) MATCH THE LABORATORY ENVIRONMENT DEFINED BY THE USER SOPS (STANDARD OPERATING PROCEDURES) AND COMPLY WITH ALL NATIONAL, REGIONAL, AND LOCAL LAWS.**

#### 4. User Administration

The following table shows the **User Administrator** rights and default **User Rights**:

User Rights	Hydro_ Operator	Hydro_ Application_ Specialist	Hydro_ Administrator	User Administrator
Add Users and Modify User rights				X
Add User Roles and Modify User Roles rights				X
Assign initial passwords				X
Change user administration options				X
Run programs	X	X	X	
Edit programs		X	X	
Save programs		X	X	
Download programs		X	X	
Sign documents			X	
Modify signed documents			X	
Edit plate parameters			X	
Set instrument parameters			X	
Edit lists			X	
Lock a Program			X	
Select Lanuage			X	

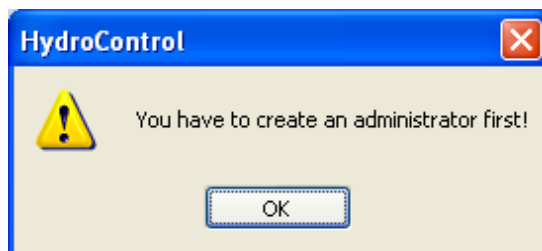


**Note**

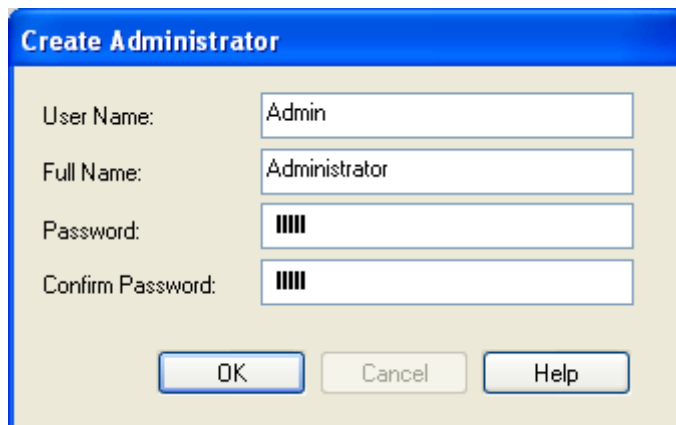
*It is recommended that the User Administrator NOT have any User Rights on the HydroControl software (i.e. should not be assigned the role of: Hydro\_Administrator, Hydro\_Application\_Specialist, Hydro\_Operator or any custom defined roles).*

### 4.1.1 Logging in for the First Time

When HydroControl is started for the first time, a message appears informing that a **User Administrator** must be created first.



Click **OK** and the **Create Administrator** dialog box appears.



Enter a user name, full name, password, confirm the password and click **OK** to save the settings. At least one **User Administrator** must be created.

Observe common sense guidelines when creating a password, so that it is strong and not easily forgotten.

In case the Administrator password gets lost, the password cannot be recovered and HydroControl must be uninstalled and installed again.



#### CAUTION

**IF THE USER ADMINISTRATOR PASSWORD IS FORGOTTEN, USER ADMINISTRATION SETTINGS CANNOT BE CHANGED AND HYDROCONTROL MUST BE COMPLETELY REINSTALLED (THE SOFTWARE MUST FIRST BE COMPLETELY UNINSTALLED AND THEN INSTALLED AGAIN, NOT INSTALLED "OVER" THE ALREADY INSTALLED SOFTWARE).**

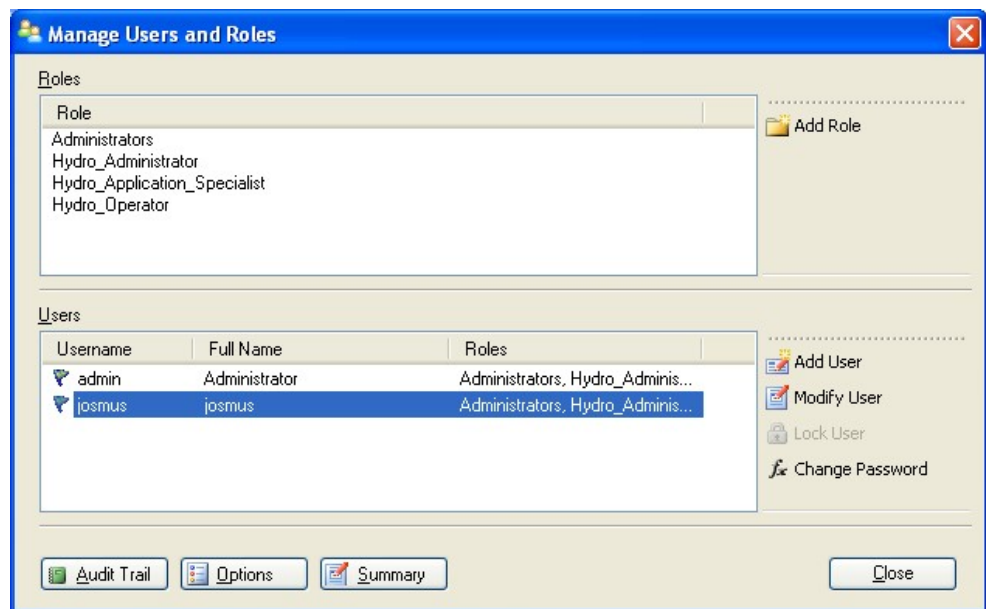


#### Note

*It is recommended that at least two User Administrators are created.*

## 4. User Administration

After clicking **OK**, the **User Administration** dialog box appears:



Users and roles can be added, edited, or deleted and user rights can be defined. Options for login, password, and email can be edited.

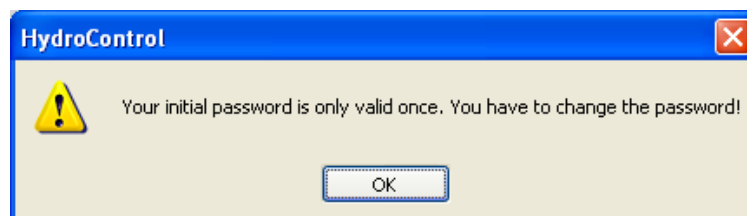
The **User Administration** dialog box contains the following elements:

<b>Roles</b>	The roles list shows all existing roles (user levels).
Add Role	A new role with corresponding rights can be created.
Modify Role	Rights of an existing role can be modified
<b>Users</b>	The users list shows all existing users and their roles.
Add User	A new user can be created.
Modify User	Full name, user level (role) or password of an existing user can be changed
Change Password	Press this button to change the password.
<b>Audit Trail</b>	The audit trail shows all modifications of the user administration database (e.g. creation of roles/user, change of rights, change of options, ...)
<b>Options</b>	General login, password or email options can be modified
<b>Summary</b>	A summary of all roles and users is displayed.

### Initial Password

When a user logs in for the first time, the password must be changed.

After entering the **User name** and **Password** and clicking **OK**, the following message appears:



The initial password is only valid once and expires after three days. If the initial password is not used within three days, the password expires and a new password must be assigned by the HydroControl\_Administrator, (this does not apply to **Admin**, see 2.1 User Administration Quick Start).

The user must enter the old password then the new password. The new password must be confirmed to prevent typing errors.



The new password will expire after a specified period of time, see Password Expiration.

## Login

Each time HydroControl starts, the **Login** dialog box appears:

Enter the **Username** and **Password** and click the green arrow to continue.

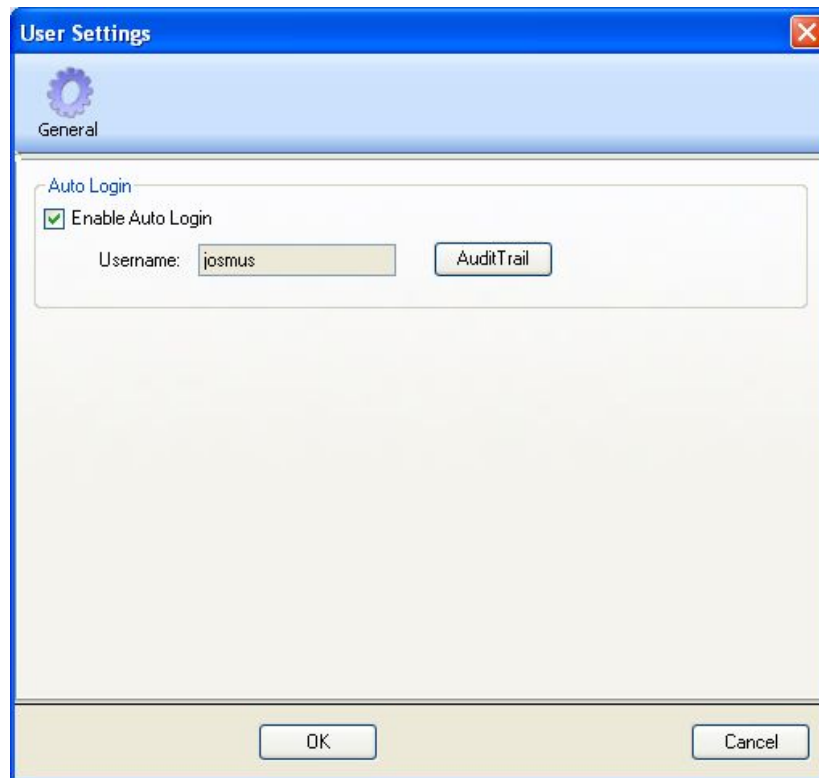
The user account will be disabled after the maximum number of consecutive unsuccessful logins has been reached (see Application Locked).

The **Login** dialog box contains the following elements:

<b>User Name</b> text box	Enter your <b>User Name</b> .
<b>Password</b> text box	Enter your <b>Password</b> .

## 4. User Administration

### Auto Login



Select **Enable Auto Login** to allow users to log in without entering username and password.

Only an **Administrator** can enable or disable the automatic login.

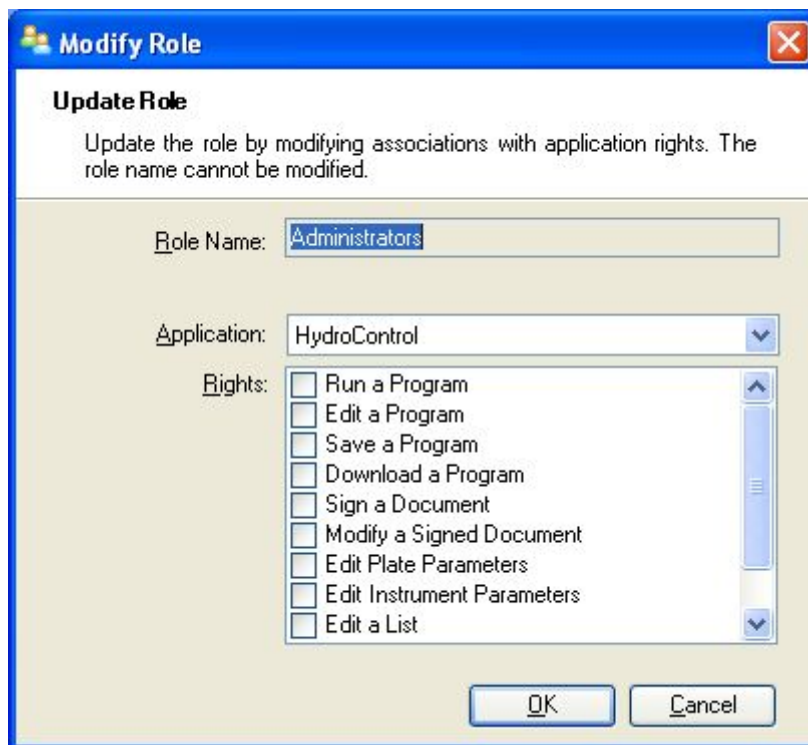
If **Auto Login** is enabled, the HydroControl software is no longer compliant with FDA regulation 21 CFR Part 11 for electronic records and signatures.

When **Auto Login** function is used, we recommend to increase the password expiration time (max. 36500 days; menu: Tools/ User Administration/ Options/ Password).



### 4.1.2 Add/ Modify Role

Click **Add Role** or **Modify Role** in the **User Administration** dialog box and the **Add/ Modify Role** dialog box appears:



The **Add/ Modify Role** dialog box contains the following elements:

<b>Role Name</b>	A unique role name has to be entered when a new role is created. This name cannot be modified afterwards.
<b>Rights</b>	The role represents a specific user level and corresponding user rights can be selected.

## 4. User Administration

### 4.1.3 Add/ Modify User

Click **Add User** or **Modify User** in the **User Administration** dialog box and the **Modify User** dialog box appears:

The **Modify User** dialog box contains the following elements:

<b>User Name</b>	A unique user name has to be entered when a new user is created. This name cannot be modified afterwards.
<b>Full Name</b>	Enter the full name of the user. This can be changed later.
<b>Roles</b>	Select the role of the user.
<b>Change Password</b>	The initial password is only valid once and expires after 3 days. The password must be changed at next login.
<b>Rights</b>	
<b>Roles</b>	Select from one of the existing roles. The rights associated with that role are assigned to the user.

### 4.1.4 User Administration Audit Trail

Click **Audit Trail** in the **User Administration** dialog box and the **User Administration Audit Trail** dialog box appears:

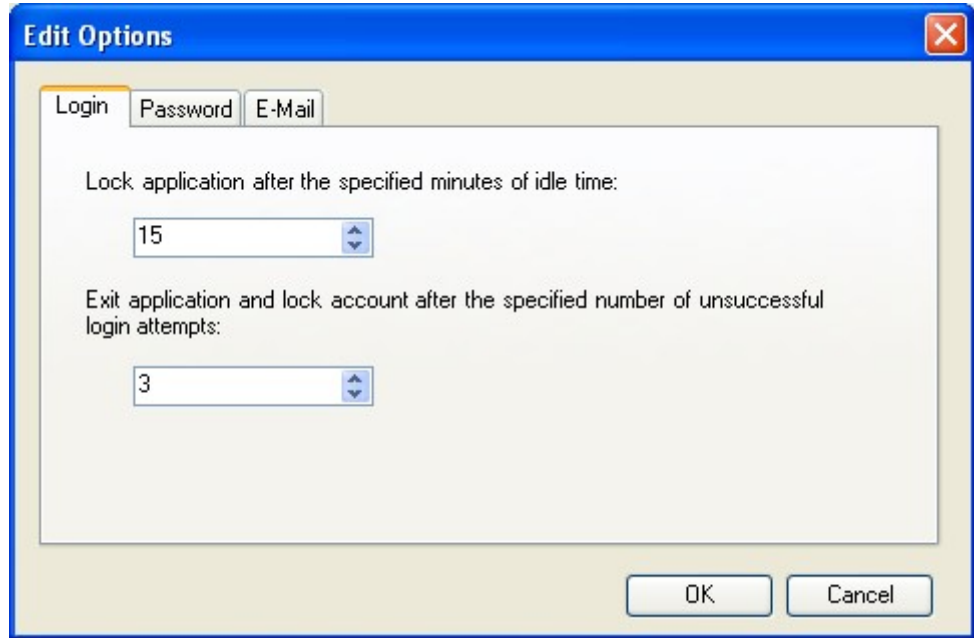
The audit trail shows a list of all modifications of the user administration database. Each entry consists of the user (name and full name), date and time of change and what has been changed.

The text can be copied to a word processing program for printing.

### 4.1.5 User Administration Options

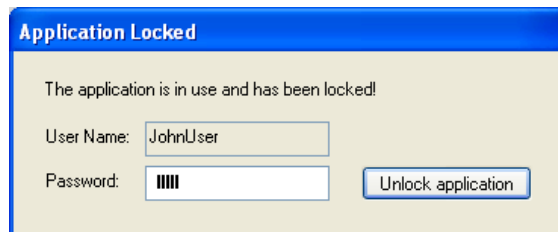
Click **Options** in the **User Administration** dialog box and the **User Administration Options** dialog box appears and has the following tabs: **Login**, **Password** and **Email**.

#### Login Options



<b>Auto Lock</b>	If the user doesn't use the application for a specified time (1 min - 24 hours), the application is automatically locked and the user has to reenter the password.
<b>Unsuccessful logins</b>	After a number of consecutive unsuccessful logins (1 - 10), the user account is locked and optionally an alert email is sent to the system administrator.

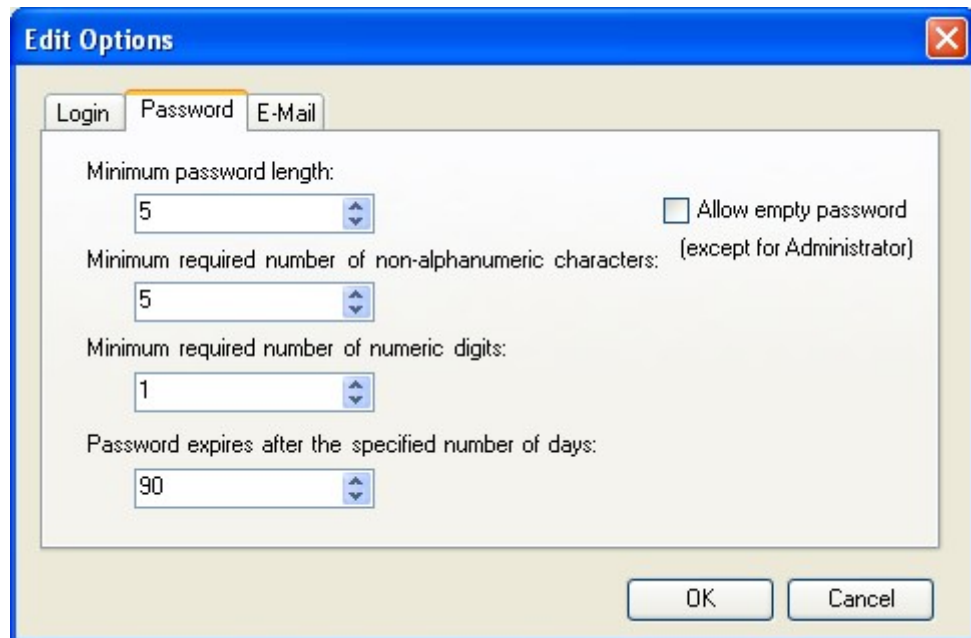
#### Application Locked



If the application has not been in use for the specified maximum time it will be locked. The password must be entered to unlock the application. See **Auto Lock** above.

## 4. User Administration

### Password Options



**Edit Options**

Login Password E-Mail

Minimum password length:  
  Allow empty password

Minimum required number of non-alphanumeric characters: (except for Administrator)

Minimum required number of numeric digits:

Password expires after the specified number of days:

OK Cancel

Passwords must fulfill minimum requirements. The minimum length of passwords can be set (5 - 99) and passwords can optionally contain numeric digits.

### Password Expiration

Passwords expire after a specified interval (1 - 365 days) and must be changed. Passwords cannot be reused. When the password expires, the user will be prompted to enter a new password.



**Change password**

**Change password**

Please provide the new password for future validation. Note that administrators need not provide the old password.

User Name:

New Password:  ?

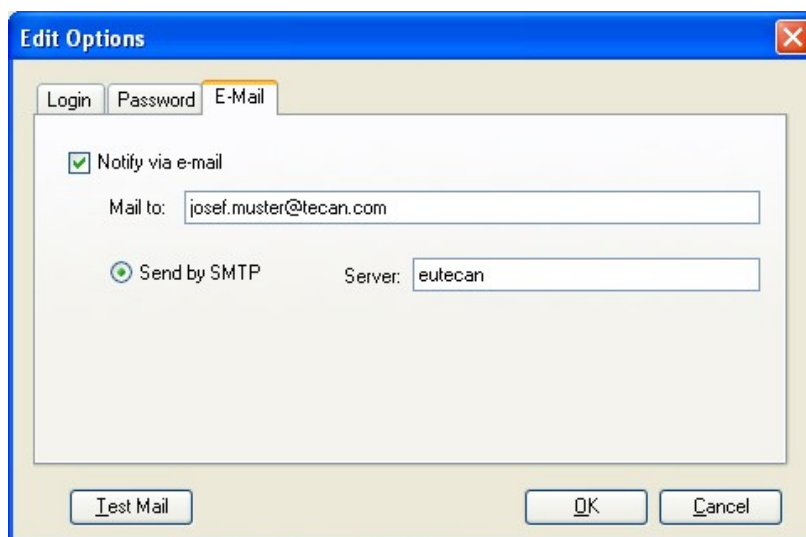
Confirm Password:

OK Cancel

The **New Password** must comply with the specified password rules and has to be entered twice to prevent typing errors.

Old passwords cannot be reused.

## Email Options



An administrator can be notified in case of potential security attacks (a user account has been locked because a number of unsuccessful logins).

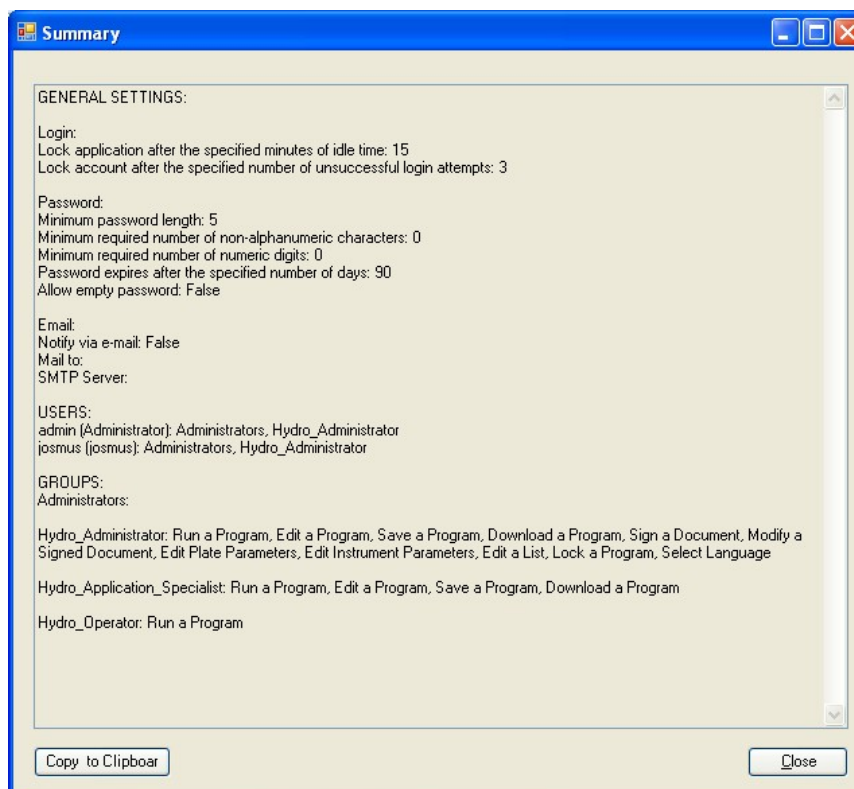
An email can be sent to the entered email address:

- **Mail to:** insert the respective e-mail address
- **Send by SMTP:** the IP address of the SMTP server has to be entered

Click **Test Mail** to send a test mail to verify that the settings are correct.

### 4.1.6 User Administration Summary

A detailed description of all existing users and roles as plain text can be obtained by clicking **Summary** in the **User Administration** dialog box.



The text can be copied to a word processing program for printing by clicking **Copy to Clipboard**.

## 5. Trouble Shooting and Error Messages

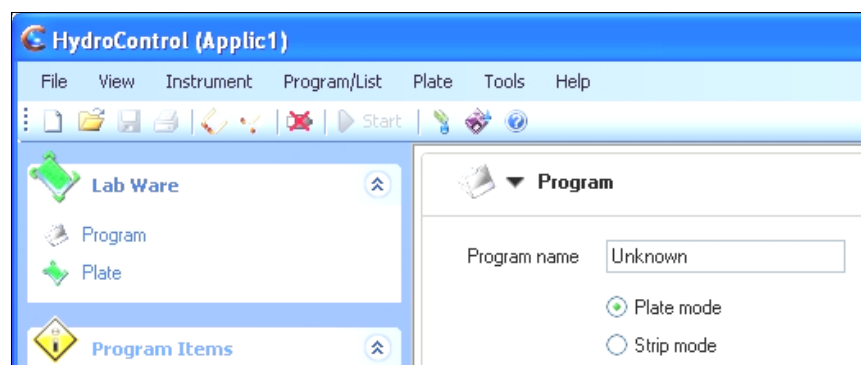
### 4.1.7 Select Language

Use the command **Select Language** from the **Tools** menu to change the language of the HydroControl software and the displayed language on the instrument. The software needs to be closed after selecting a new language. Restart the application; HYDROFLEX needs to be connected again.

### 4.1.8 Change User

Select **Change user** from the **Tools** menu to logout the current user and to login a different user.

In the header of the main window, the name of the current user is displayed in brackets:




### 4.1.9 About HydroControl

Select **About HydroControl...** in the **Help** menu to open the **About HydroControl** dialog box.

All software relevant information is shown.

Click **OK** to close the dialog box.

## 4.2 Exiting HydroControl

To exit the HydroControl software, select **Exit** from the **File** menu or click the close button  in the upper right hand corner of the main window.

# 5. Trouble Shooting and Error Messages

See the corresponding chapter in the instructions for use for HYDROFLEX.

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