Agilent Dissolution Tester Driver

Agilent Technologies

Notices

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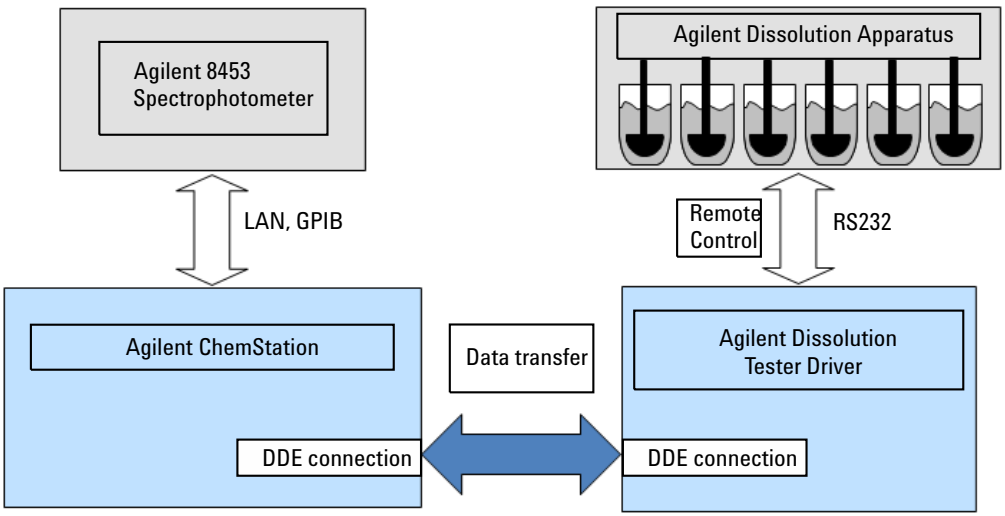
Introduction

The Agilent Dissolution Tester Driver software is an additional software module handled automatically by the UV-visible ChemStation's Dissolution Testing application.

The purpose of this module is the remote control of Agilent's dissolution apparatus as defined by the applications dissolution method.

The key parameter defining test conditions are part of a dissolution method and adjusted automatically by means of the driver module. During the dissolution experiment tester data like stirring speed and temperature can be tracked.

The schematic below indicates the data communication between the UV-visible ChemStation software and the Dissolution Tester Driver.



Before the Agilent Dissolution Tester Driver can be applied it must be installed on the PC the UV-visible ChemStation is residing. In addition the configuration for automatic launch is required.

The bath driver software is directly linked to a single tester. If multiple testers are connected for multibath operation each tester requires an execution of its own instance.

According to the testers attached, different tester driver can be applied for different models or tester brands.

NOTE This manual only describes the Agilent tester driver software features. Compatible tester models are Agilent 708-DS, 709-DS, VK7000, VK7010 and VK 7020.

Dependent on the interfacing approach using a single COM port per tester or using a daisy chained configuration, two different driver packages are offered.

NOTE Please read "Connecting your tester to the PC" on page 9 first for deciding on the driver packing to be installed.

Site requirements

An online dissolution system controlled by the UV-visible ChemStation's Dissolution testing software including the dissolution tester must be installed.

The PC must have a CD-ROM drive for the installation.

The driver software is supported on Windows XP, Windows VISTA and Windows 7 in their professional editions.

The PC must have a serial RS232 communication port for interfacing the tester. The interface cable (RS 232 Tester connection cable (single tester) (p/n 5075-0552)) has a 9 pin Sub-D male connector to the PC and a 25 pin Sub-D male connector to the tester.

NOTE

If no direct 9 pin RS232 connection is available, alternatively USB connections in combination with the Agilent converter interface (USB to Serial Adapter (p/n 8121-1013)) can be applied. For details of the installation of the converter interface see "Using the USB to Serial Adapter interface" on page 46.

Connecting your tester to the PC

Configuration with a single tester

1 Setup and align your tester first. Make sure it is in an operable condition and connected to line power.

2 Switch the PC and the tester off.

NOTE In case of a tester equipped with a water bath the heater can be left on. If the heater is switched off, please make sure you always switch on the heater before switching on the tester.

3 Connect the serial cable provided to an available COM port of the PC with the 9 pin connector and the 25 pin connector to the tester's 25 pin input at the back of the tester head.

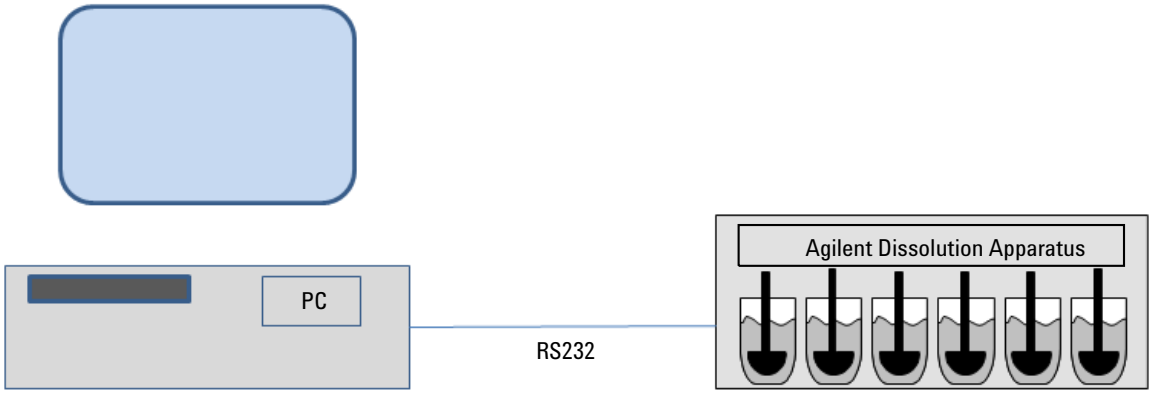


Figure 1 Single tester connection

Configurations with multiple testers

In case of multiple testers different wiring can be applied.

The first approach is identical to the single tester connection. In this case a COM port for each tester must be available. If not sufficient COM ports are available, alternatively a USB to serial converter interface can be applied. This interface is required for each tester interfaced using a USB connection.

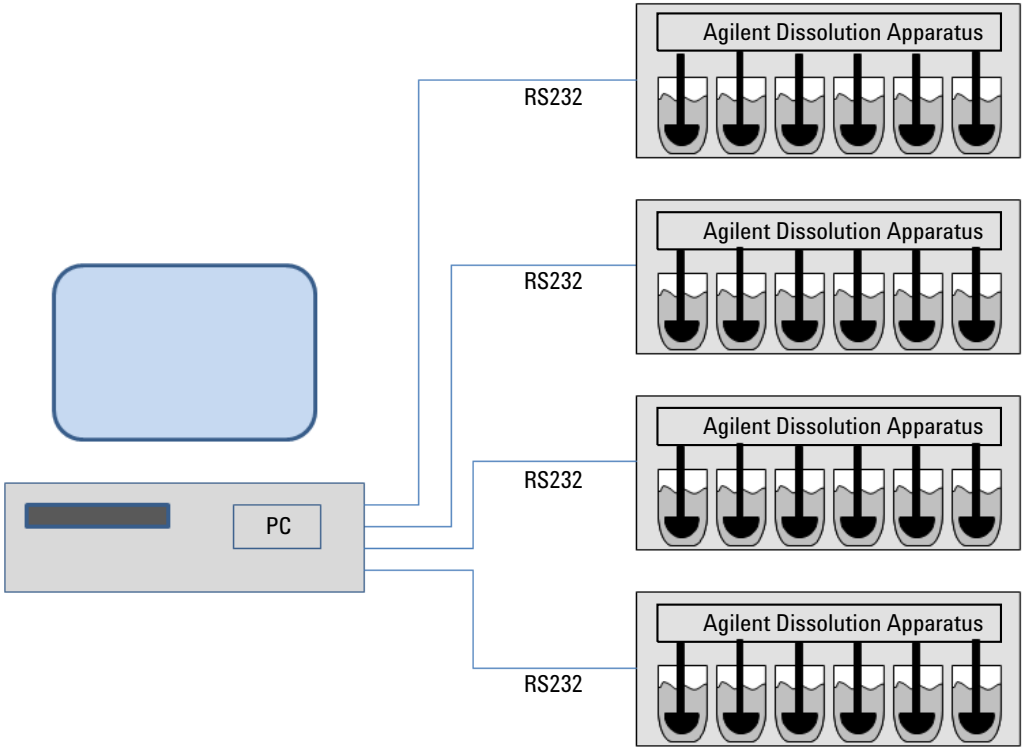


Figure 2 Multiple tester direct connection

NOTE The driver setup program for the approach with directly linked COM ports is on the root directory of the product CD-ROM.

The alternate approach is using a daisy chained configuration. In this case multiple testers are sharing the same COM port.

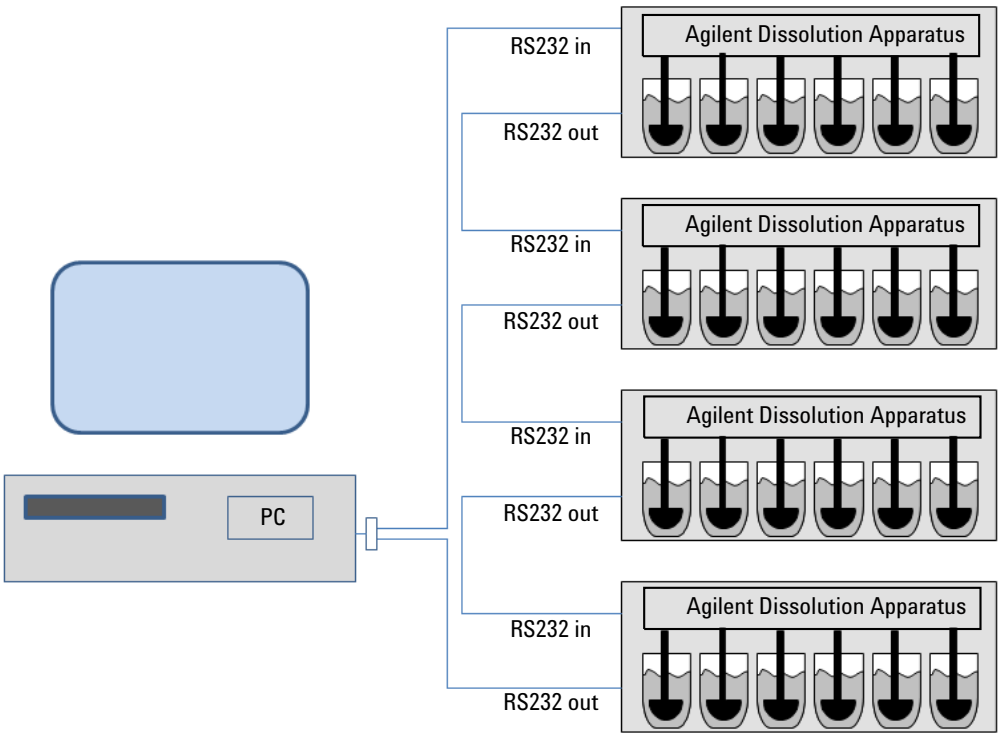


Figure 3 Multiple tester daisy chained connection

NOTE Use the driver setup program in the subdirectory Setup chained configuration of the product CD-ROM.

NOTE Make sure that all testers connected to the same COM port have a different ID.

The cable (DB9/RJ11 adapter and cable kit (daisy chained testers) (p/n 5075-0260)) is connected to a COM port via the 9 pin sub D connector/RJ11 adapter to the PC. The RS 232 out (Tx) is connected to the RJ11 socket at the back of the first tester marked with the label RS 232 in.

The second tester is connected to the first using its RS232 out socket via the serial link cable (RJ11 link cable (daisy chained testers) (p/n 5075-0244)) wired to the second tester's RS232 in socket.

Additional testers are hooked up the same way using the last wired testers RS232 out connecting to their RS232 in port.

The last tester's RS232 out port is connected to the 9 pin sub D connector/adapter's RS232 in (Rx) connection using the cable (DB9/RJ11 adapter and cable kit (daisy chained testers) (p/n 5075-0260)).

NOTE In this configuration all testers must be switched on for a proper operation!

2
Installation of the tester driver software

Installation of the tester driver software

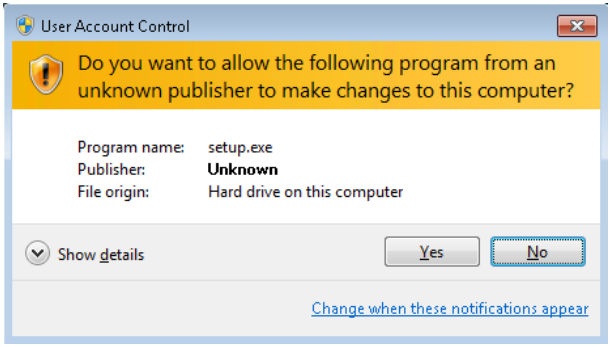
1 Log on to the PC of the target system with local administrator rights.

2 Insert the Dissolution Tester Driver Software CD and run one of the Setup.exe programs on the product CD-ROM according to your tester configuration.

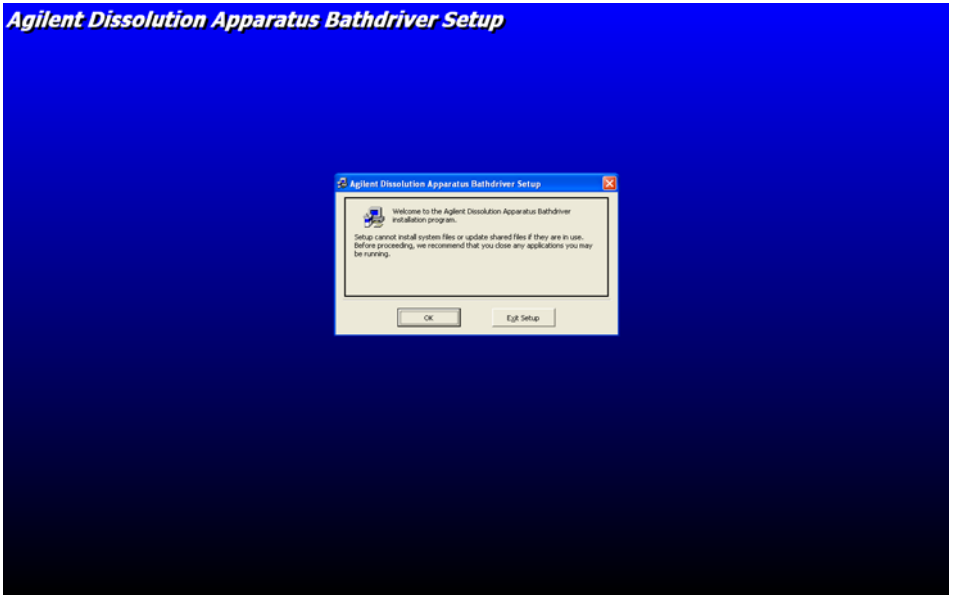
NOTE Make sure you install only a single driver software on your PC!

NOTE If you get the warning dialog below, press **Run** to continue.

NOTE If you get the request dialog below, press the Yes button.

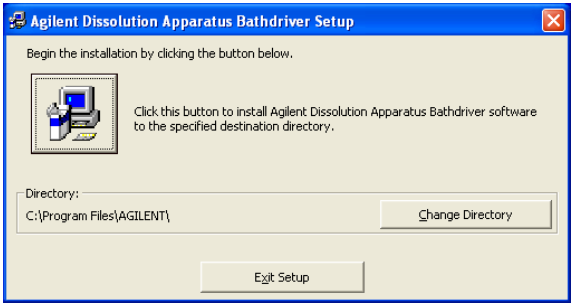


3 Select **OK** to continue.



4 Use the **Change Directory** button if you want to change the installation path.

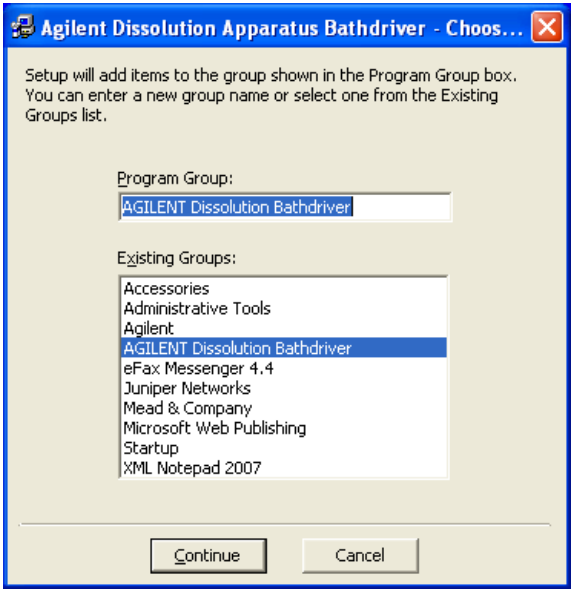
NOTE Write down your installation path; you need this information for the driver configuration.



5 Press the **Setup** icon to continue with the installation.

6 To use the proposed program group press **Continue**.

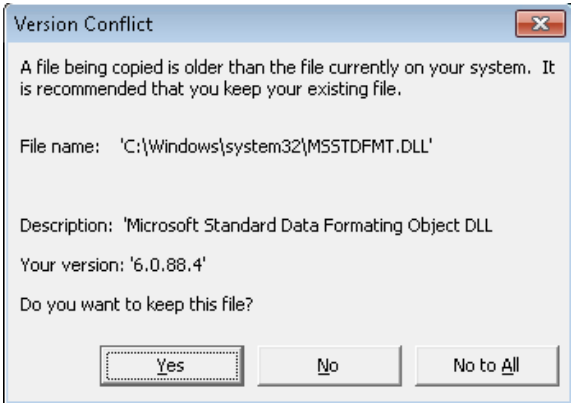
NOTE Alternatively select or enter your **Program Group** name and then press **Continue**.



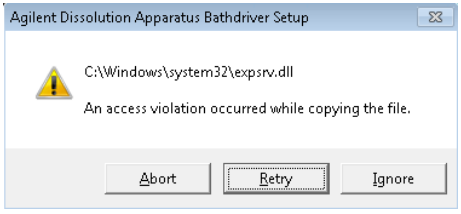
7 Click **OK** to finish with the setup.

NOTE If you got the information during the setup that a component is newer than the one to be installed, please press Yes to keep the latest component.

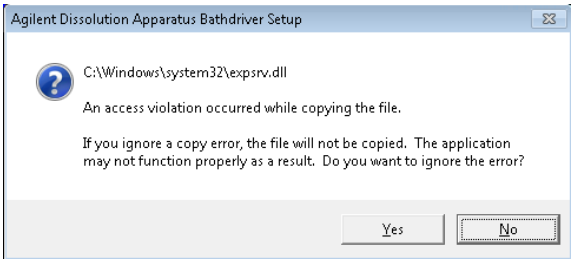
An example of such a dialog is:



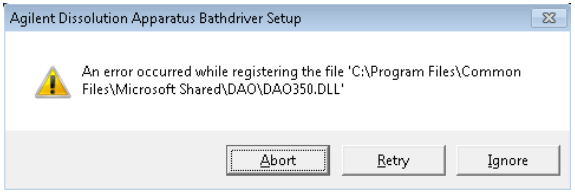
NOTE If an access violation occurs during the setup, click **Ignore** to continue.



On the following dialog, click **Yes** to continue.



NOTE If a registration error occurs during the setup, click **Ignore** to continue.



8 Continue with the configuration of your driver.

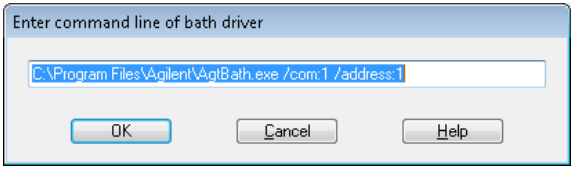
9 Configure your Agilent Dissolution Tester Driver Software in your UV-visible ChemStation Dissolution Application.

NOTE If your UV-visible ChemStation has the Security Pack for 21 CFR part 11 compliance installed, make sure you have manager rights for the session launch.

Single Bath Dissolution Testing Configuration

1 Launch your UV-visible ChemStation in the online mode and switch to the **Dissolution Testing** mode.

2 Select the **Bath** command from the **Config** menu and enter the full qualified driver executable name,
`C:\Program Files\Agilent\AgtBath.exe /com:1 /address:1` by default.



3 Press **OK** to save your configuration.

NOTE

The entered configuration becomes active only after a new launch of the UV-visible ChemStation's Dissolution testing modes.

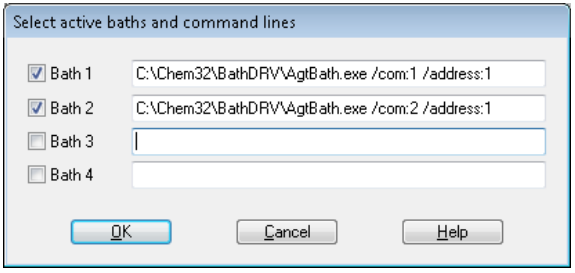
For launching the newly specified driver switch to Standard mode and back to Dissolution Testing.

Multibath Dissolution Testing Configuration

1. Launch your UV-visible ChemStation in the online mode and switch to the Multibath Dissolution Testing mode.
2. Select the **Bath** command from the **Config** menu and enter the fully qualified driver executable names for all bath configured.
3. The configuration example below shows a multibath system configured for two baths using the direct serial communication ports COM1 and COM2.

NOTE Both testers are using the default tester *Comm ID* of 1. No address conflict arises here as two different physical interfaces COM1 and COM2 are used.

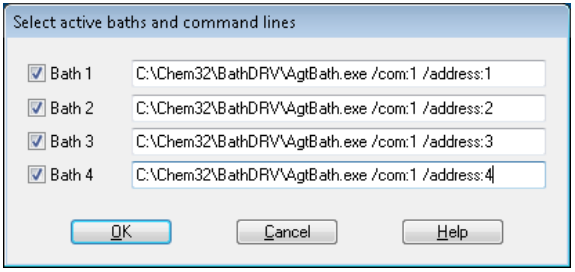
NOTE The tester configuration is not limited to Agilent tester driver software only. Mixed tester brands can be used by the ability of configuring different tester driver software.



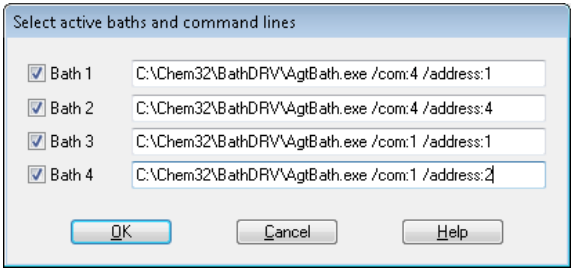
4 The configuration example below shows a multibath system configured for four baths using daisy chained connections on the serial communication port COM1.

NOTE Note the driver for daisy chained configurations must be installed.

NOTE All testers are sharing the serial port COM1. However, different tester *COMM IDs* 1...4 are applied.



5 Also other combinations of COM ports and addresses are supported. A two COM port setup with four testers is shown below.



Details of the command line entry

The command line is used for launching the dissolution tester communication software and passing required parameters to this application. The Agilent dissolution tester driver software is a standalone executable piece of software. It can be launched for multiple attached testers using different command line parameters.

By default two additional parameters are added by the UV-visible ChemStation's dissolution applications. The first is the DDE server name stated as */DDE:<DDE server name>*. The DDE server name is automatically generated by the operating system. The second is indicating the dissolution application mode. It is specified as */Mode:single* for the dissolution testing mode or */Mode:multi<ID>* where *<ID>* is the bath ID of the multibath dissolution testing mode.

These entries are not displayed with the bath driver configuration command line.

Required Entries

<Driver path name> The first entry in the command line dialog is the path name of the driver executable, *C:\Program Files\Agilent\AgtBath.exe*. Parameters can be added each separated by a blank.

For the Agilent Tester Driver Software two parameters are required.

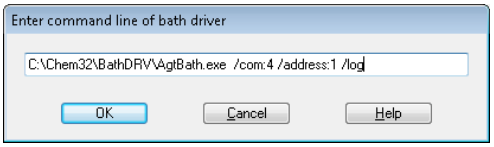
/com:<value> The com parameter defines the COM port applied for the serial communication to the tester attached. The parameter is preceded by the respective identifier */com:* followed by the value for the port used. In this example the parameter */com:1* refers to COM1.

/address:<value> The address parameter is the instrument's *Comm ID* on the serial communication line. This parameter can be changed on the local interface of the dissolution tester. The *Comm ID* parameter can be adjusted using the **Instrument Settings** dialog of the tester's **Setup** menu. The command line syntax of the identifier is */address:*. In the above example a tester *Comm ID* of 1 is configured. The *Comm ID* 1 is default on the Agilent testers.

The above defined required parameter *com* and *address* can be specified in any sequence.

Optional Command Line Parameter

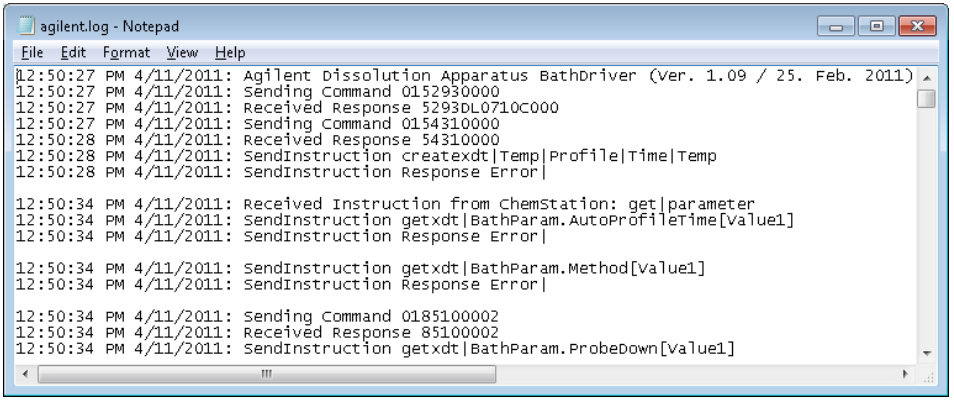
/log To diagnose the tester communication, the */log* parameter can be applied. By means of this parameter a file with the sent and received commands is written.



NOTE The logging should only be switched on temporarily for diagnostic purposes.

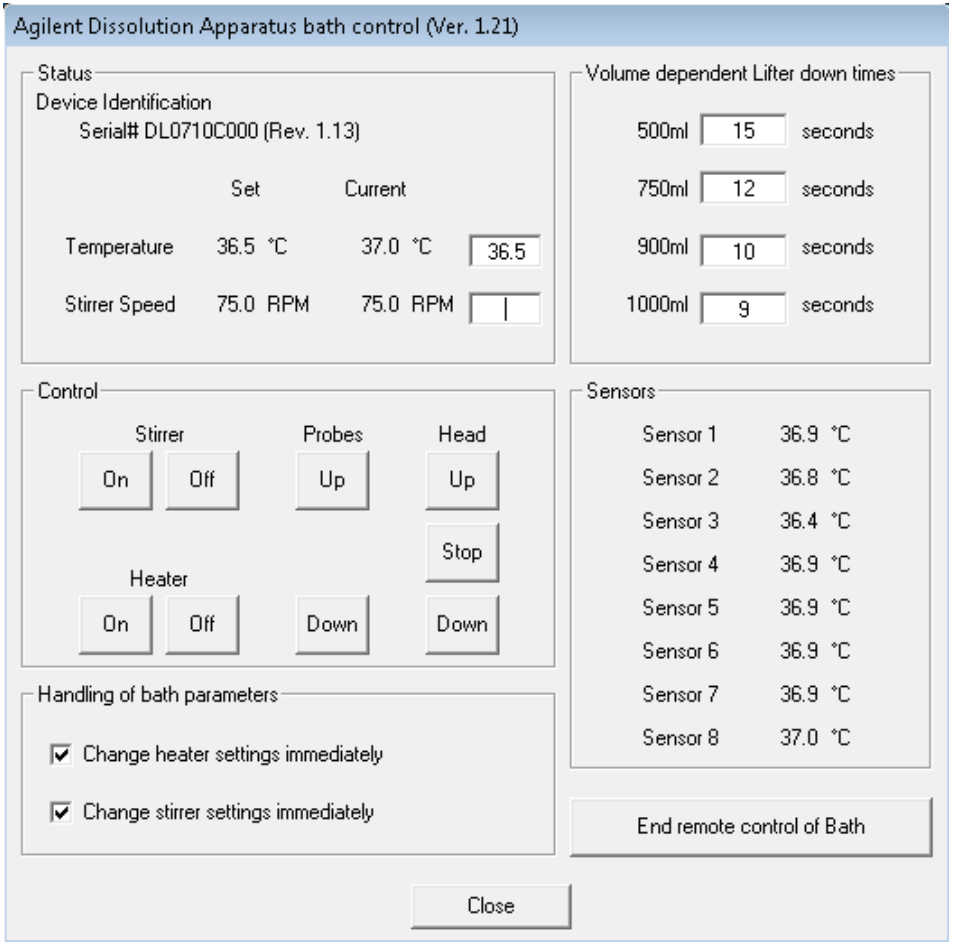
The log file is created on the root of the C drive or on the respective user 's virtual storage path with the name Agilent.log. In Windows 7 e.g. the admin user's log file can be found in the directory C:\Users\Admin\AppData\Local\VirtualStore.

Example of a communication log file.

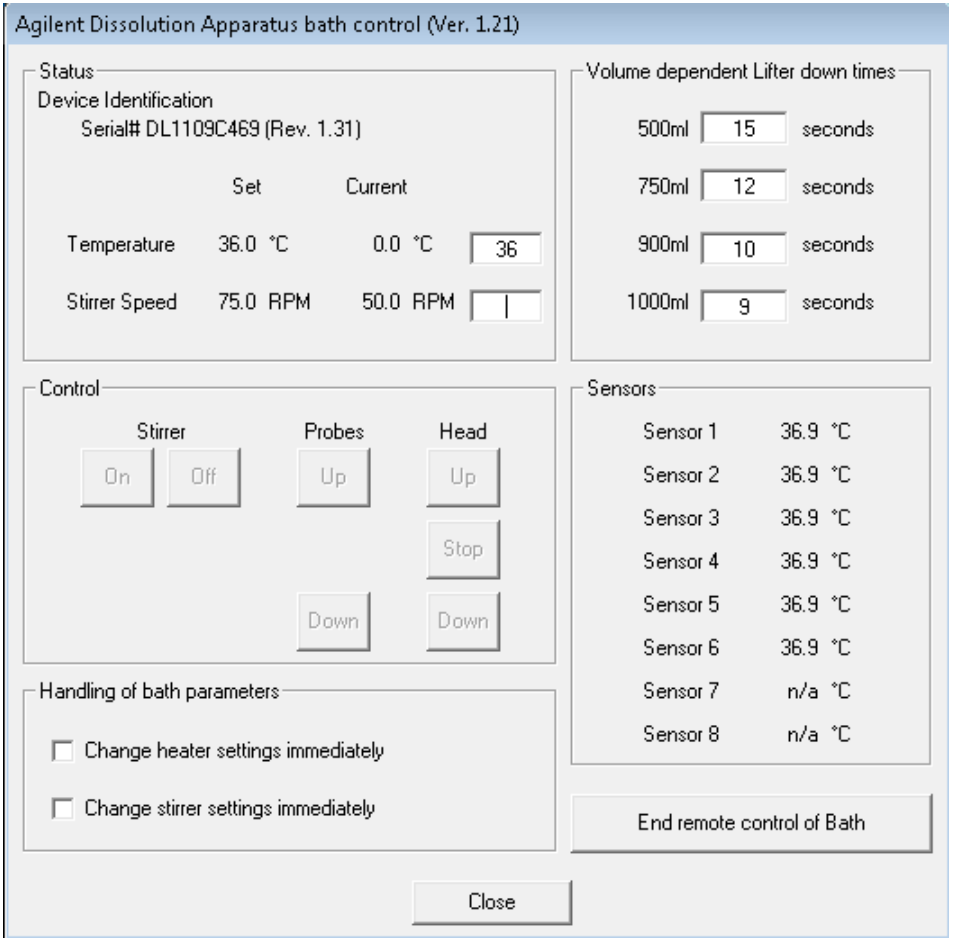


/edit The command line parameter */edit* allow changing tester set points interactively. By this means the bath temperature and stirring speed settings can be directly entered and set in the status window.

Status window with editing enabled on water bath thermostatted units:



Status window with editing enabled on direct vessel heating units during dissolution run:



NOTE

Target settings for temperature and stirring speed can be entered using the entry fields adjacent to the current settings.

Target settings cannot be changed if the system is running a dissolution test. In this case all direct control buttons are deactivated.

According to the check marks in the **Handling of bath parameters** section, the new set points may or may not become active immediately.

The entered set points will appear with a short delay under the **Set** column. If the change immediately option is checked, the values in the **Current** column will approach the target set values. This process is fast for changes of the stirring speed but slow for temperature changes.

This is more for testing purposes rather than in actual runs. In typical operation these settings are provided by the method applied.

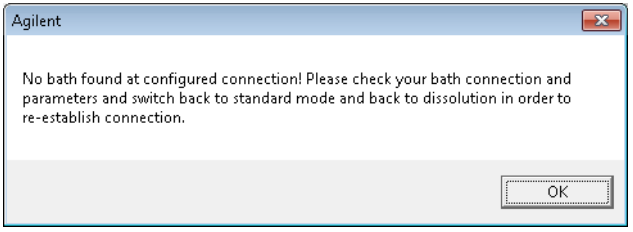
3
Using the driver features

Using the driver features

The properly configured Agilent Tester Driver is launched automatically when entering an online session of the Agilent UV-visible ChemStation software's dissolution applications.

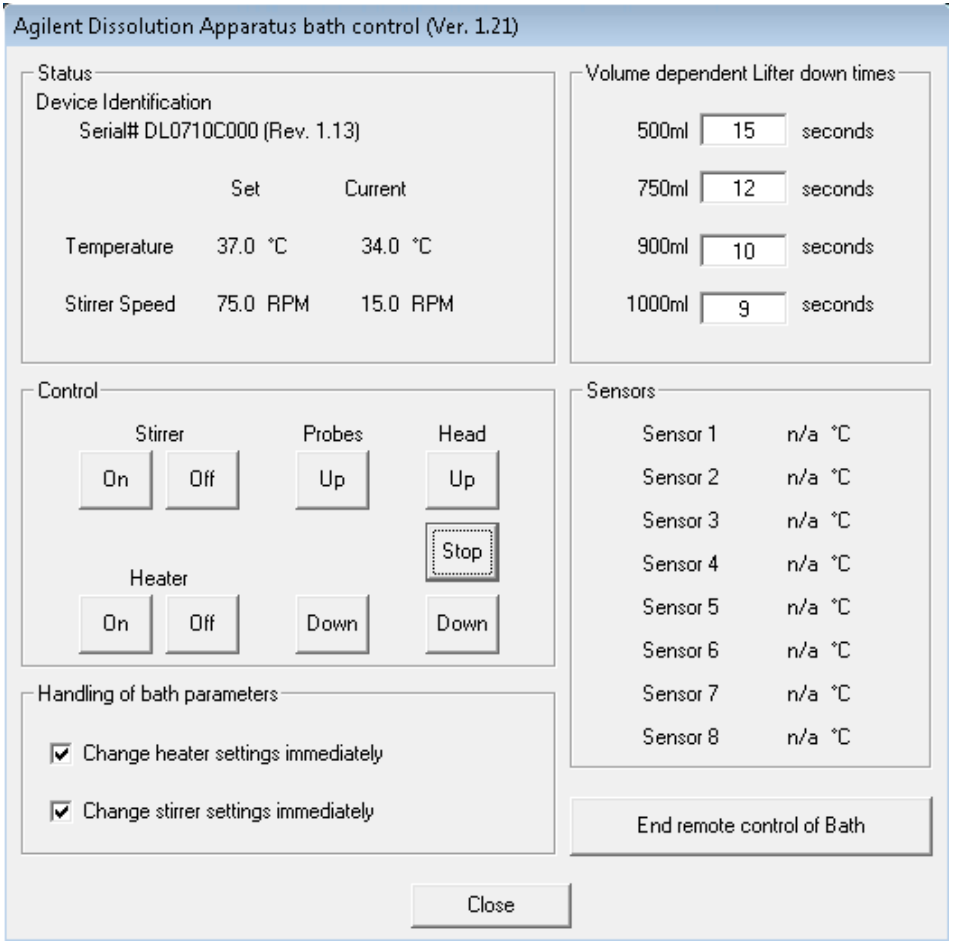
If the tester is up and running it will be set into remote operation mode. In addition you have access to the Dissolution Bath Status Window by means of the instrument menu.

NOTE If the tester is wrongly configured or switched off, you will get the following warning dialog with the respective hint.

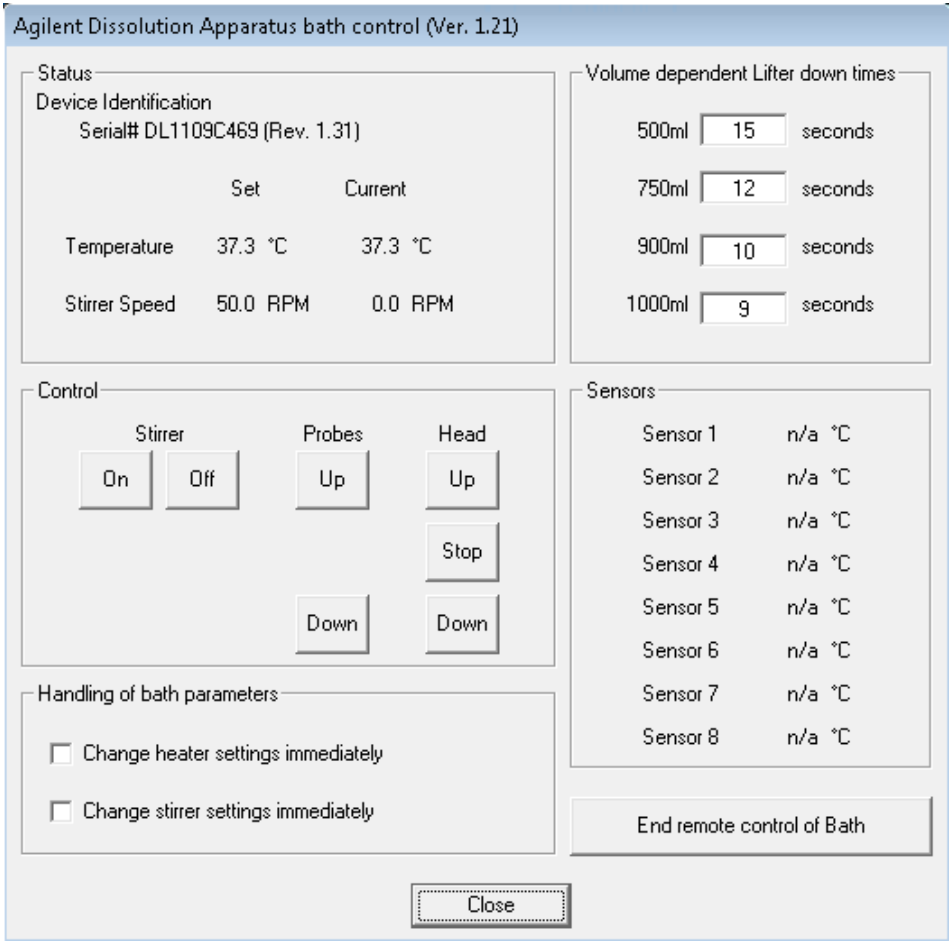


Press **OK** to close this dialog box.

After launching the Dissolution Bath Status by going to the **Instrument** menu and executing the Dissolution Bath Status a window similar to the one shown below will pop up.



In case a 709-DS with direct vessel heating capability is connected, the status screen window looks similar like below with no buttons for a heater.



If the application is currently indicating its Ready status, the status window can be used executing the following operations using the **Control** group of the window.

Stirring can be switched on or off by means of the **On** and **Off** buttons underneath the **Stirrer** label.

In case of a tester with a water bath the heater can be switched on or off using the respective buttons adjacent to the **Heater** label.

NOTE Make sure the heater is switched on. It has a separate power switch.

NOTE The 709-DS with direct vessel heating capability has a separate power supply for heating. Make sure it is switched on.

If the manifold for the probes is installed, the probes can be raised and lowered into the vessel.

If temperature probes for the vessels are installed, individual readings are provided for the medium temperature in the vessel.

NOTE The vessels must be filled with medium and the manifold must be in its down position. Be aware that the down position is a function of the vessel volume configured.

NOTE Temperatures below 30 °C are not available. Instead “n/a” is displayed.

A motorized head can be raised and lowered using the **Up** and **Down** buttons.

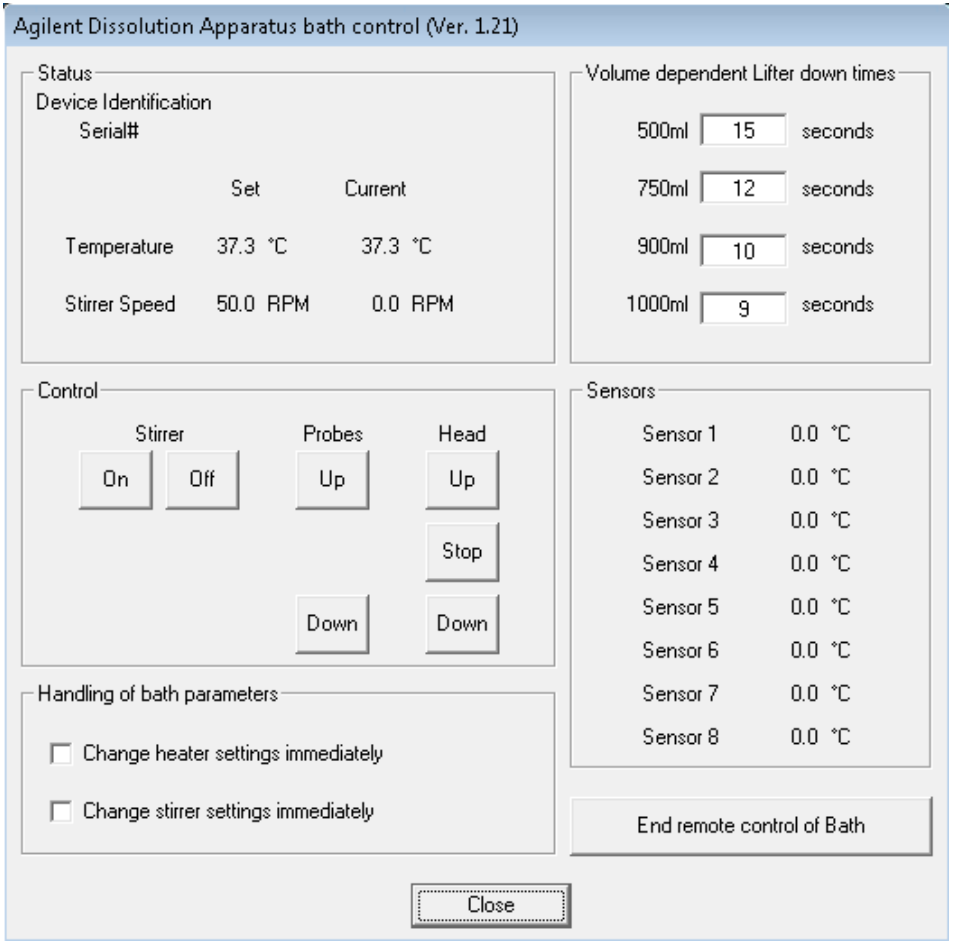
NOTE Make sure nothing is in the way of the travelling head. Keep off the area between the vessel base and the head.

The movement can be stopped immediately by means of the **Stop** button.

NOTE For performing a dissolution test run the drive head must be in its down position.

The Dissolution Tester Driver software is automatically terminated, if the dissolution application is closed.

NOTE If the dissolution tester is not accessible, the status window looks as indicated below. The example below is showing the status of a 709-DS.



In the **Status** section of the window no serial number is indicated.

Using the dissolution tester driver software in combination with an automated run

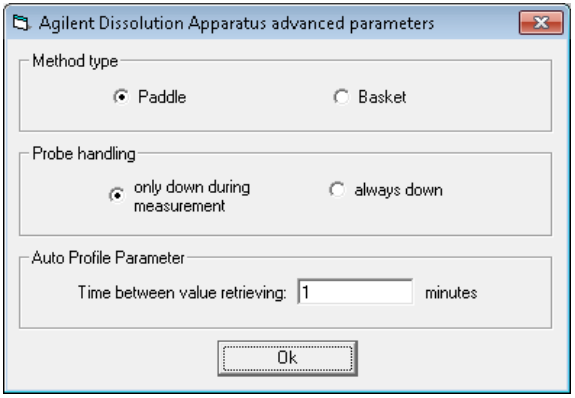
Most useful is the driver software in combination with an on-line sampling system. In such a case the tester conditions of the method can be automatically handled by the Agilent UV-visible ChemStation Dissolution software. In addition test relevant conditions like bath temperature, vessel temperatures and stirring speed can be monitored at an adjustable frequency.

The monitoring data are becoming part of a dissolution testing results file. This is very useful diagnostics information in case of unexpected results.

4
Configuring a UV-visible ChemStation's dissolution testing method for tester control

Monitoring of tester data

In the UV-visible ChemStation's method setup enter the method menu's **Product, Bath and Info Method Parameters** tabbed dialog. Select the **Bath** tab and press the **Advanced...** button.



In the **Probe handling** section select your method of applying the probes to the vessels. Here your decision might be impacted by the availability of the manifold and individual vessel temperature probes. If you want to assure getting temperature readings at the given **Auto Profile Parameter** frequency, you should select **always down** option.

NOTE If the manifold is in its up position, no temperature readings are available.

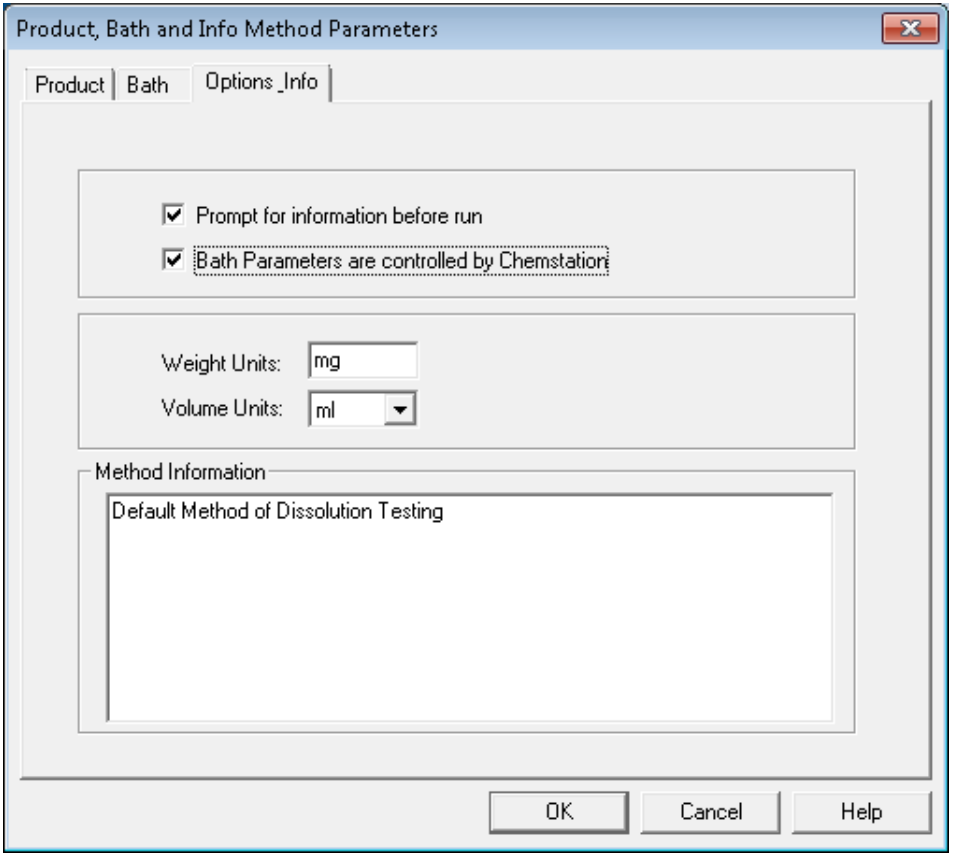
NOTE The bath temperature readings of the 709-DS are indicating the properly working temperature regulation on all configured vessels. The temperature reported here is the target vessel temperature.

NOTE Probes in the vessel have a potential impact on the dissolution process. They are interfering with the medium flow. For dissolution test result comparison mixed approaches should not be applied here.

For the frequency of the monitoring data you should take the amount of data into consideration. In particular on longer run times a frequency of 1 min can generate a lot of data. Usually temperature changes on bath and medium temperatures occur on a longer time scale. So in many cases a frequency of 10 min is appropriate.

Using UV-visible ChemStation dissolution software to control the tester parameter

In the UV-visible ChemStation's method setup enter the method menu's **Product, Bath and Info Method Parameters** tabbed dialog. Select the **Options Info** tab and check **Bath parameters are controlled by ChemStation**.

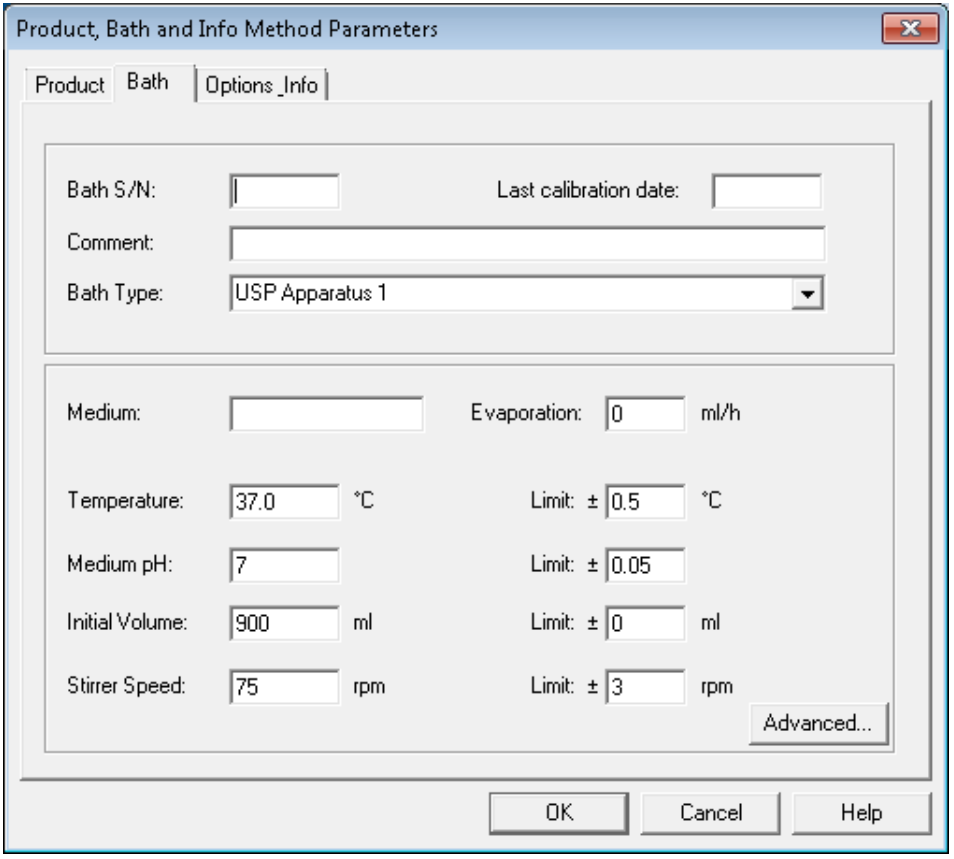


NOTE

This option links a UV-visible ChemStation method directly to the tester.

The parameter set on the bath section of the dissolution method setup will be send to the dissolution tester on closure of the dialog.

NOTE In case of a 709-DS heating is not initiated immediately.



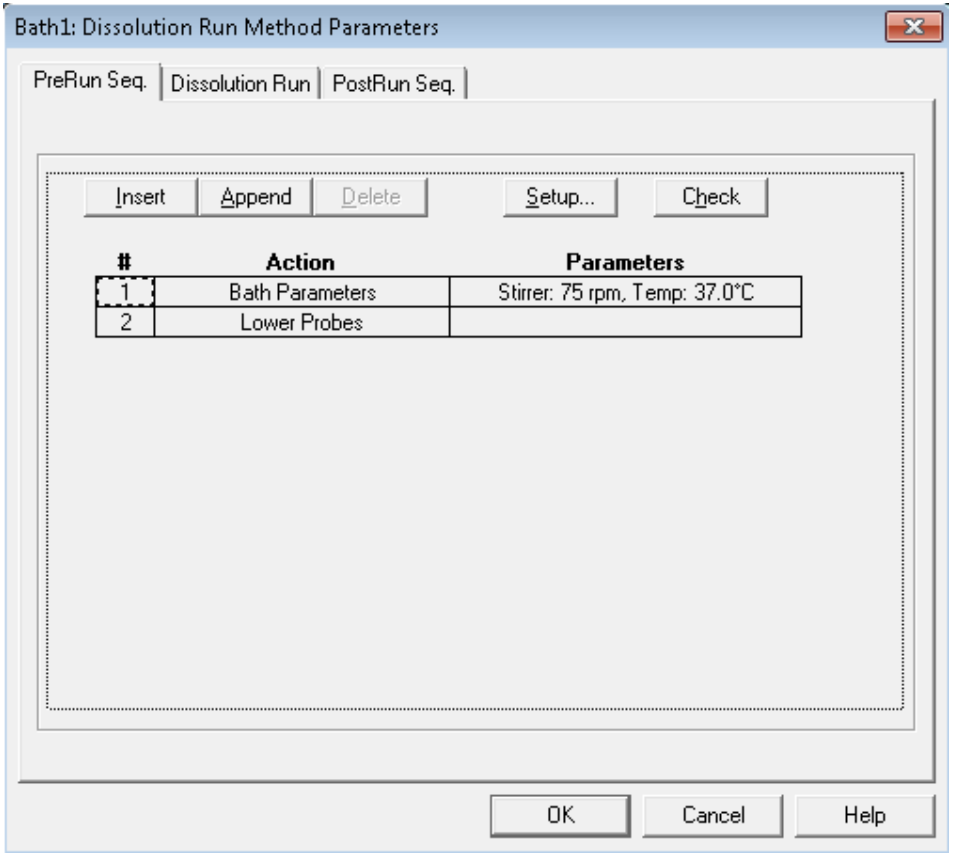
In the above example the bath temperature of 37.0 °C and the stirring speed of 75 rpm would be set.

NOTE The limits specified above are automatically checked at dissolution measurement time points. In case of exceeding the limit, an entry to the run logbook is created automatically.

Using UV-visible ChemStation dissolution software to control the 709-DS

The 709-DS applies direct vessel heating individually to each configured vessel. To prepare the 709-DS for a dissolution testing run, the medium in all vessels has to be heated up to the target temperature. In automated runs the UV-visible ChemStation's prerun table can be applied to assure proper medium temperature.

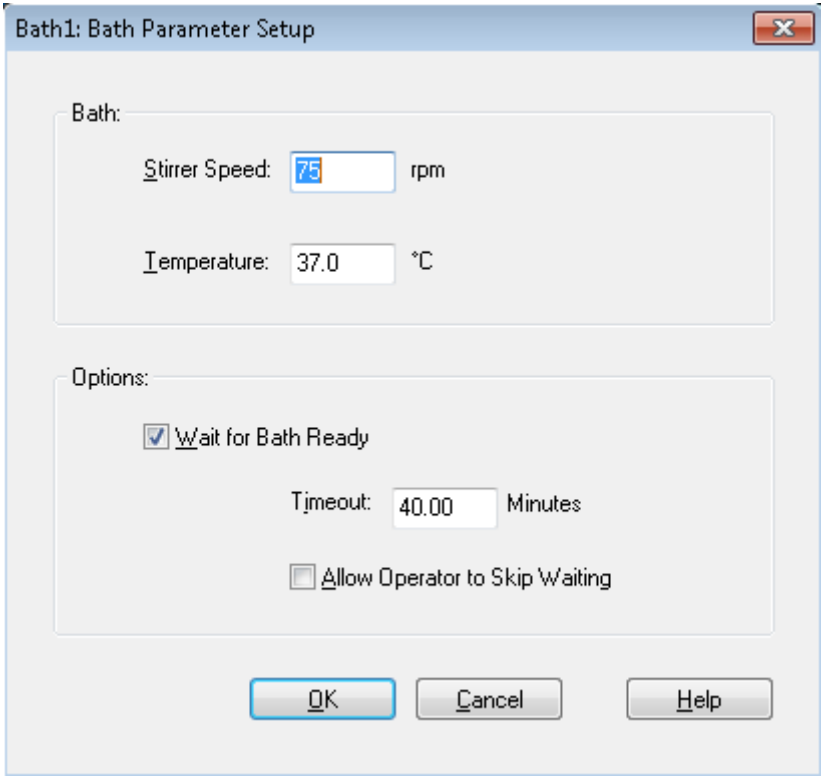
The following actions in the prerun sequence must be available. If additional actions in preparation of a dissolution test are required, those actions must be performed before the heating of the medium.



NOTE

After completion of the preheating cycle of the 709-DS the manifold is automatically lifted. If the **Probe handling** option **always down** is selected, the probes must be lowered by the **Lower Probes** action.

The details for the Bath Parameters setup are:



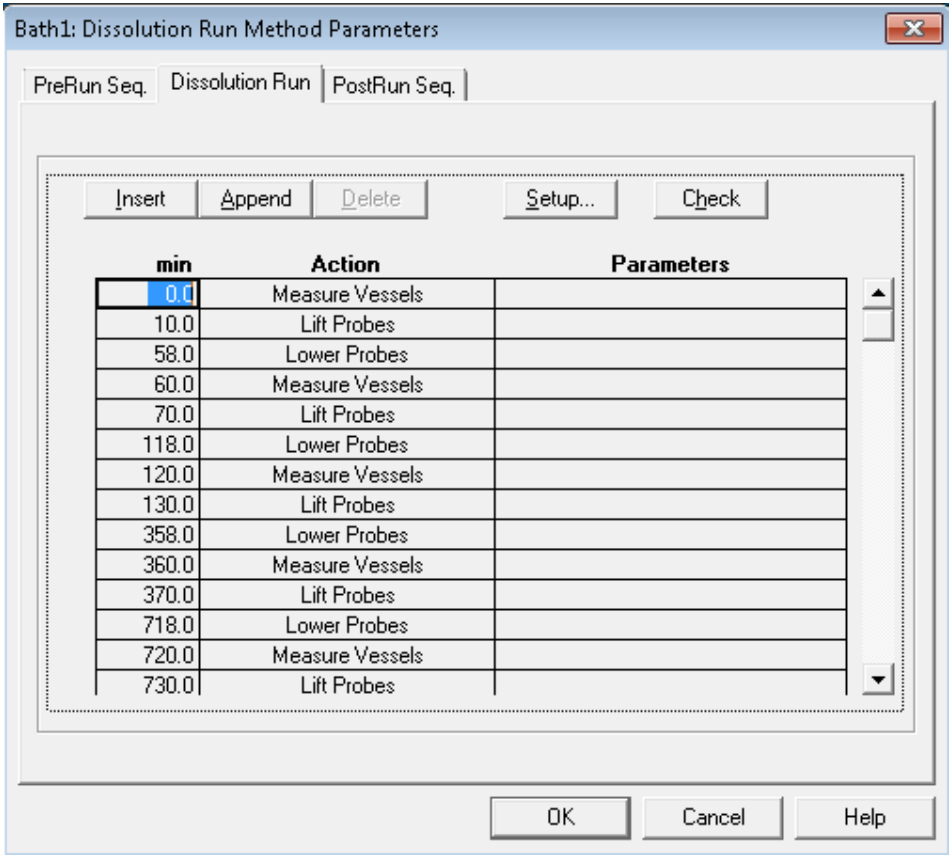
NOTE The preheating cycle must be completed successfully for proper medium temperature durig the test. Therefore the option **Wait for Bath Ready** must be checked and a sufficient time out specified.

NOTE In case of the 709-DS no further changes to the bath parameters are allowed during a running dissolution test.

NOTE The limit test on bath temperature does not apply here as all vessels have their dedicated heaters. Here the individual temperatures must be checked.

NOTE In case of probes control, please make sure lowering probes with sufficient time for moving down and temperature equilibration before the adjacent time point.

Example of the setup of time points and probes control:



The setup using 2 minutes time ahead assures the probes are down before the pump starts to draw the sample. However, pump times longer than 60 minutes may require an adjustment here. The sample transfer by means of the peristaltic pump always starts ahead of the next time point.

5
Using the USB to Serial Adapter interface

Using the USB to Serial Adapter interface

In case of multiple baths connected to a single PC or if no free COM port is available on your PC the USB to RS232 converter cable (USB to Serial Adapter (p/n 8121-1013)) can be applied.

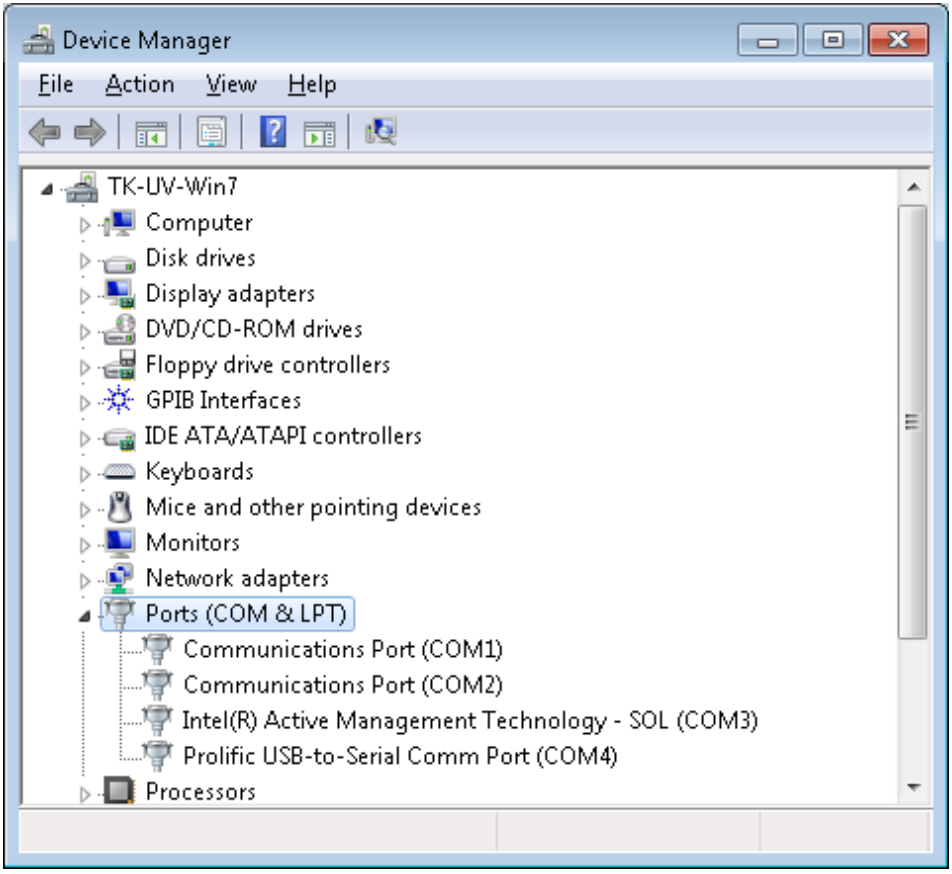
The converter interface ships with a driver CD-ROM. Please make sure installing this driver before you first connect the interface to your PC.

Instructions are with the User Guide shipping with the interface.

After plugging in the USB to Serial adapter cable, automatically a new com port will be assigned to it.

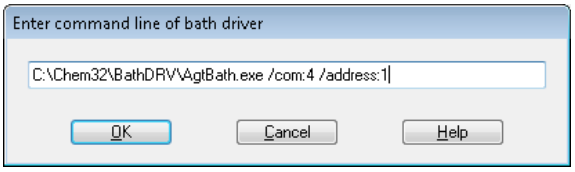
The Windows Device manger can be used for checking the device assignment as well as the proper installation. It should appear under the Ports (COM&LPT) section.

In the example below it appears as “Profilic USB-to-Serial Comm Port (COM4)”.



NOTE In case of problems with the driver provided, please go to the www.cablestogo.com web page for downloading and upgrading to the latest driver edition.

The configuration command line in the UV-visible ChemStation of the above example is:



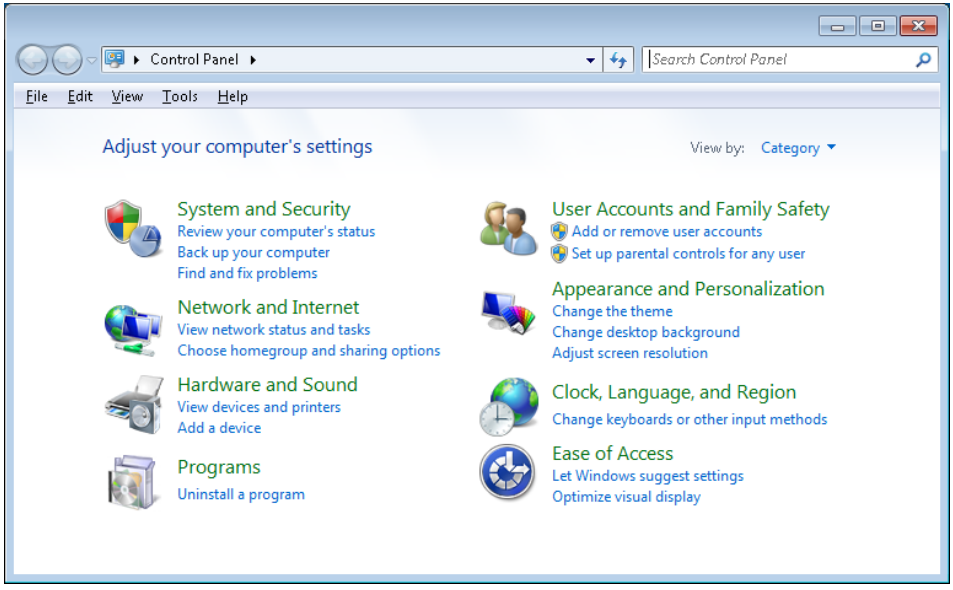
5 Using the USB to Serial Adapter interface

Using the USB to Serial Adapter interface

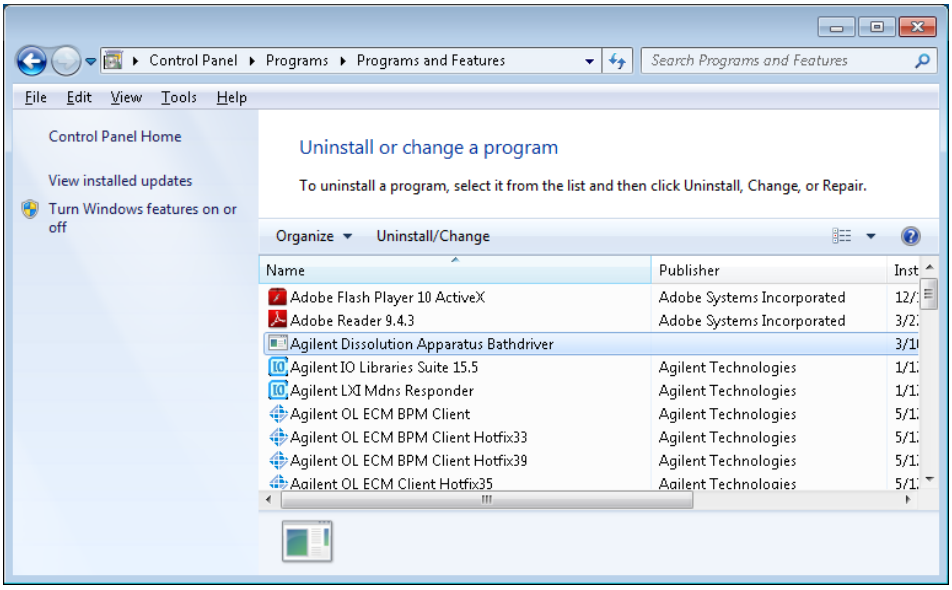
6
Dissolution tester driver software removal

Dissolution tester driver software removal

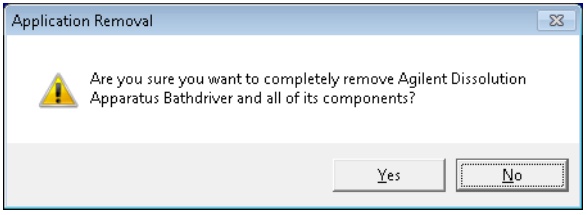
1 In the **Control Panel** click on **Uninstall a program**.



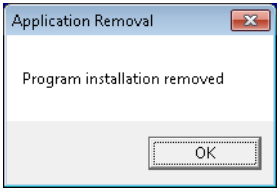
2 Double click on **Agilent Dissolution Apparatus Bathdriver**.



3 Click **Yes** on the upcoming dialog.



4 Press **OK** to quit the removal program.



NOTE Make sure to remove the bath configuration entries in your UV-visible ChemStation dissolution application.

6 Dissolution tester driver software removal

Dissolution tester driver software removal

7
Specifications

Specifications

The Agilent Dissolution Tester Driver software is a DDE linked communication software module using the RS232 interface to the Varian/VanKel/Agilent dissolution apparatus. It translates the UV-visible ChemStation commands for remote tester operation into the hardware specific tester commands. The two way communication is for sending data to the dissolution tester as well as for reading tester performance data like temperature and stirring speed.

Table 1 Specifications

Type	Specification
Operating Systems	Windows XP SP3 professional Windows VISTA business SP1 Window 7 professional 32 bit
Application Software	UV-visible ChemStation General Purpose software G1115AA and UV-visible ChemStation Dissolution software G1118AA
Compatible Tester Models	Agilent 708-DS, 709-DS, VK7000, VK7010 and VK 7020
Interfacing	Access to a serial COM port must be available
Installation	Install script with configurable path for the program setup Local administrator rights are required for the setup
Removal	Via Control Panel ‘s software removal tool ChemStation configuration must be changed manually by removing the driver path information

8
Parts and Supplies

Parts and Supplies

p/n	Description
G7900-60002	Program CD-ROM
8121-1013	USB to Serial Adapter
5075-0552	RS 232 Tester connection cable (single tester)
5075-0260	DB9/RJ11 adapter and cable kit (daisy chained testers)
5075-0244	RJ11 link cable (daisy chained testers)

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www.agilent.com

In This Book

This manual contains information on the Agilent 7900 Dissolution Tester Driver

The manual describes the following:

- Installation and Configuration
- Installation of the software
- Using the driver features
- Configuring a method for tester control
- Interfaces
- Software removal
- Specifications
- Parts and Supply

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03/12

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