EUROGLAS SOFTWARE MANUAL FOR ECS SYSTEMS

For Euroglas Windows™ software for ECS systems

10/5/2001 10:04:00 AM

Contents

1 Software

1.1 Introduction

The software for Euroglas systems is designed to work with Microsoft Windows™ 3.1x and Microsoft Windows™ 95. The software is divided in three modules. The controller, analyser and the autosampler. The controller is the main program where the main operations are done. The analyser and autosampler module are controlled by the controller or used for maintenance purposes. When there is no autosampler this module is replaced by the interactive sampler; a program acting as a sampler towards the controller. The manual is based on a common knowledge of the Windows™ operating system.

1.1.1 First time use

The software is started with the controller. This can be done in Windows 3.x in the folder Euroglas start up Econtrol(.exe). In Windows 95 use the start button, go to programs-euroglas-controller. A shortcut to the program c:\euroglas\run\econtrol.exe can be made. When the software starts three modules pop up. The autosampler module (interactive autosampler is used in case there is no autosampler), the analyser module and the controller module.
Before an analysis can be done the parameters of the analysis method and the evaluation method to your application must be configured. This can be done in the controller in the menu options. It is advisable to make a backup of the database when the methods are customised. If anything goes wrong with the database or the database is growing too big this backup can be used. The software can be ended with selecting ‘exit’ in the queue menu.

1.2 Controller

1.2.1 Main screen

The controller is the main program of the Euroglas Windows software. In this program you can create, edit and delete sample queues, change and select analysis and evaluation methods and choose calibration queues.
The controller screen has three ‘parts’. On the top there are the three menus. ‘Queue’, ‘Options’ and ‘Help’. The main part is the part for the parameters for the whole queue and the part with the tools to edit the queue and the samples in it.

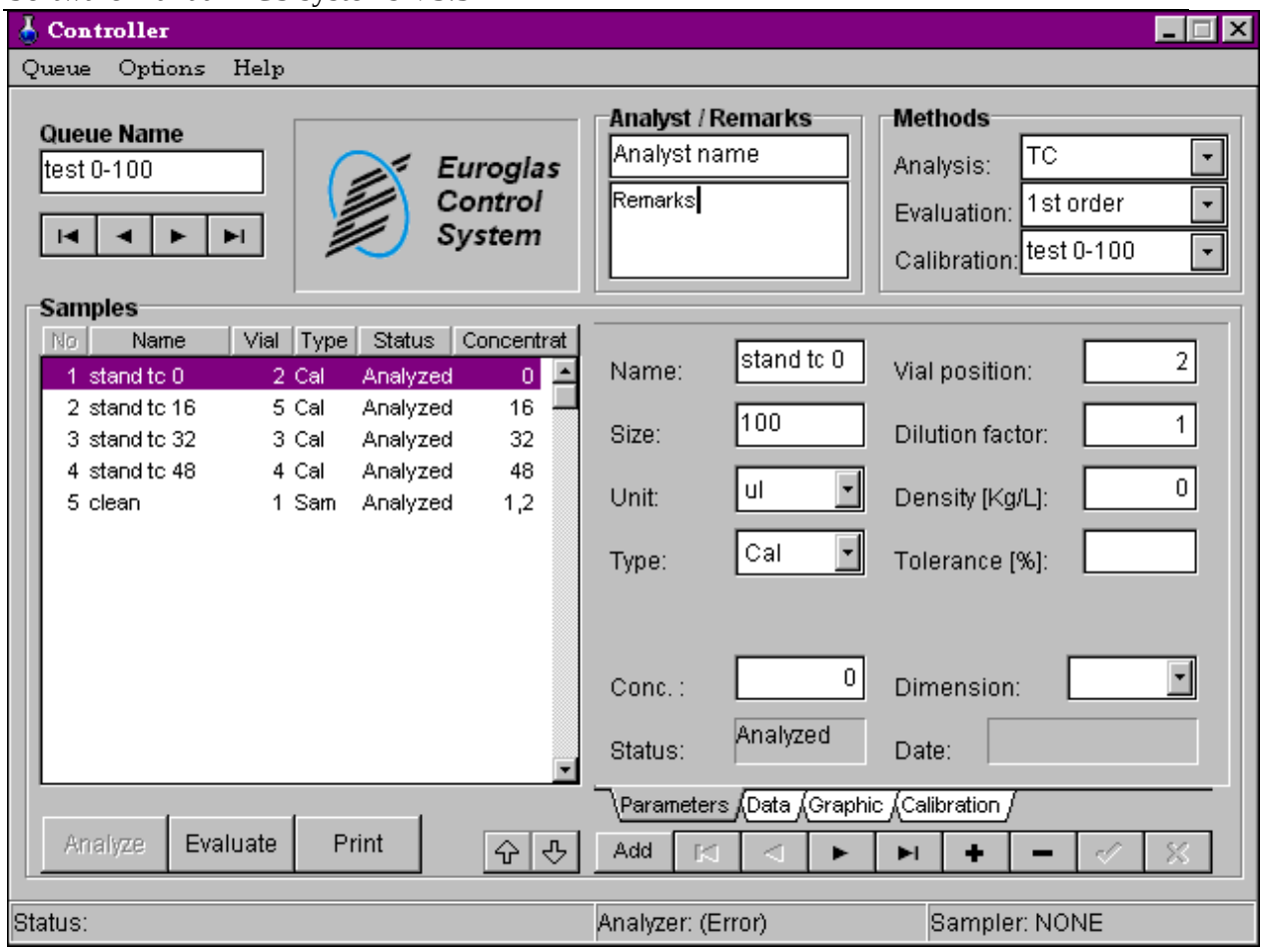


figure 1 Main controller screen

1.2.1.1 Queue parameters

On the top left is the queue name. In this box is the name of the queue that you are working with. The name also be changed in this box. The buttons with the arrows under the queue name box are for navigating through the list of available queue names.
In the middle the analyst name can be entered and you can add some comment or remark for the queue.
On the right there are the boxes where the analysis method, the evaluation method and the calibration queue can be selected. The analysis and evaluation methods are made in the options menu (see options menu chapter). You can choose here which method you would like to use for this queue. If calibrations are used for your analysis then there are two options. You can put the calibration samples in the same queue as the samples. Then you will have to choose the queue name you are working with in the calibration box. If you would like to do the calibration in a previous queue then the queue with the samples, you have to select the queue with the calibration samples in the calibration box.

1.2.1.2 Sample parameters

In the main screen the sample queue and the parameters of the samples in the queue can be edited.
Under the sample parameters there is the 'navigator' bar. These buttons are for editing the queue. The add button is for adding a sample at the bottom of the queue. The sample parameters will be copied from the last sample in the queue. The arrows that follow are to browse through the queue. The '+' button is to insert a sample above the selected sample. The '-' button is for deleting the selected sample from the queue. The two last buttons are to save or cancel the changed parameters of the sample.
The parameters for the sample can be different for each sample.

Name: Description of the sample.

Size: The size of the sample. It is not possible to use digits behind the comma. To keep the accuracy of the sample size you should change to a smaller unit

Unit: The unit of the sample size

Type: The type of sample you are using. The options are:

- Sam: Normal sample
- Cal: Calibration sample. Sample with a known concentration used to make a calibration line
- Ref: Reference sample. Sample used to monitor the system. The reference samples are highlighted in the queue report.
- Ver: Verification sample. A verification sample is used to check weather the machine is still running right. With a verification sample you have to enter the concentration and the tolerance. When the tolerance is exceeded the queue will stop. There will be a message: 'verification error'.

Vial position: Here the vial position for the autosamplers is entered. For liquid samplers multiple records for one vial can be used. When no autosampler is used the vial position can be any number or no number at all.

Dilution fac: The number of times your sample is diluted

Density: The density of the sample (Kg/L)

Tolerance: The tolerance of the verification sample

Conc: The concentration of a normal sample and a reference when it is analysed. When you have a calibration sample or a verification sample you should enter the known concentration here.

Dimension: The units of the concentration. You can select here what unit you want your concentration in.

Status: The status of the sample. This is untreated or analysed.

Date: The date and time the sample was analysed.

By using the three buttons analyse, evaluate and print you can analyse, evaluate and print the data of the selected sample. To analyse, evaluate or print the whole queue the queue menu (see chapter queue menu) should be used.
The analyse button analyses only the selected sample.
The evaluate button re-evaluates the selected sample in case a parameter of the sample, the evaluation method or if you used another calibration line (queue) are changed.
The print button will give a sample report of the selected sample.

On the bottom of the screen there is the status. The status bar gives the status of the corresponding module. If there is nothing running the status should be idle. If anything goes wrong please pay attention to the status in all modules.

1.2.2 Queue menu

In the queue menu different queues can be managed. Here is also the possibility to exit the software. Only the controller can be shut down. The analyser and autosampler will be shut down automatic. You cannot close the analyser and the autosampler module alone.

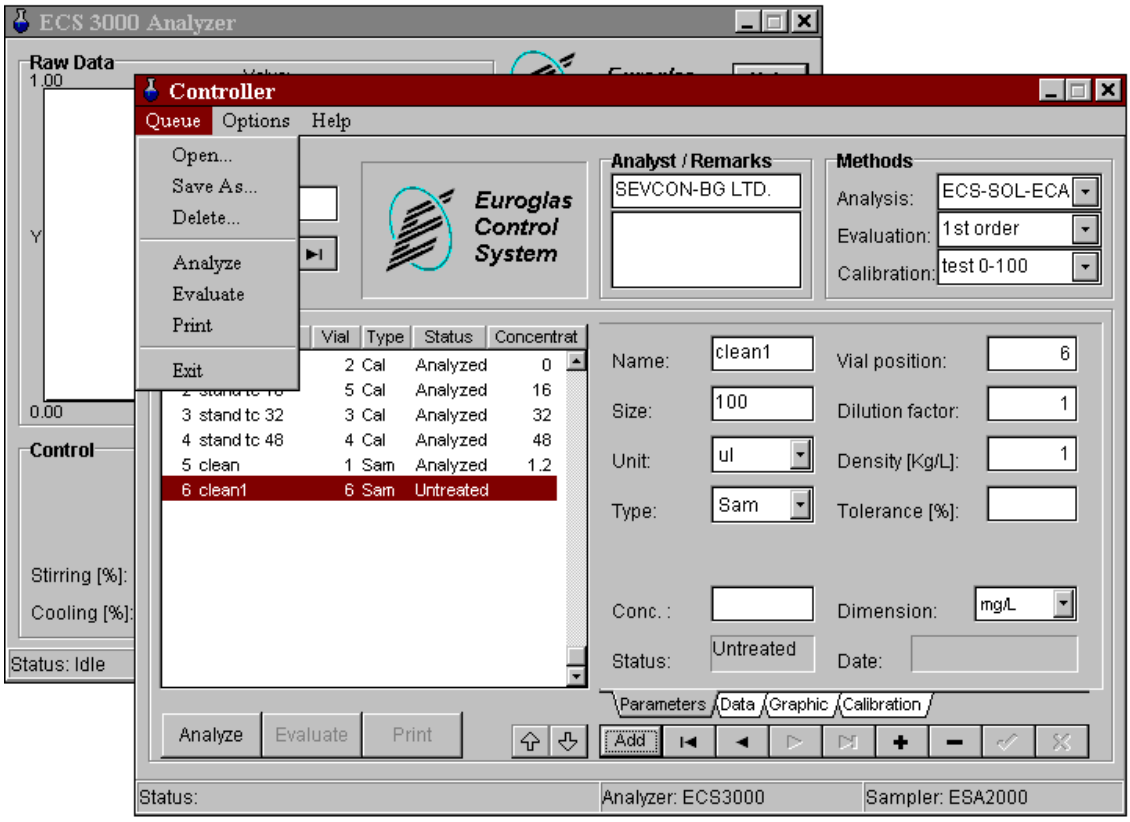


figure 2 Queue menu in the main screen

1.2.2.1 Open, save, new and delete queues

To open an existing queue select the option open. Now select the queue which you want to see, analyse or manipulate. When a new non existing name is entered here a new queue will be created.

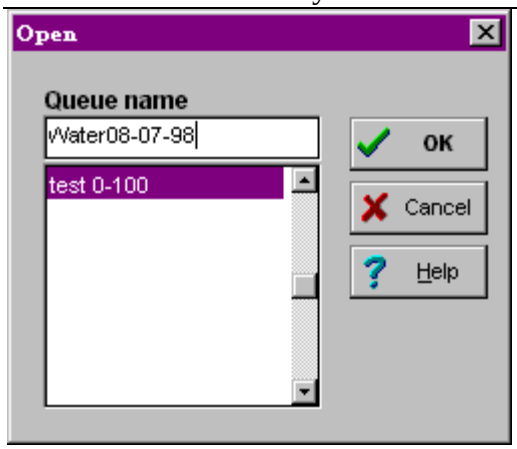


figure 3 Open an existing queue or make a new queue

When a queue is made and analysed you can create the same queue with the same parameters with the option save as. This will make a copy of the selected queue with all samples untreated. So you can easily analyse the same queue over and over again.

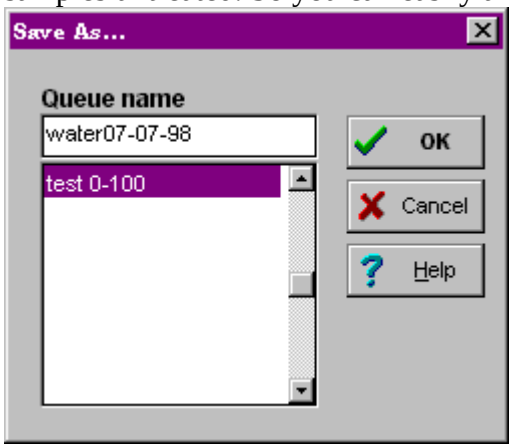


figure 4 Save a queue under another name

When a queue is not needed anymore it can be deleted with the option delete. Choose the queue name you want to delete and press delete. The software will ask you if you are sure to delete and press yes. The queue is now deleted.

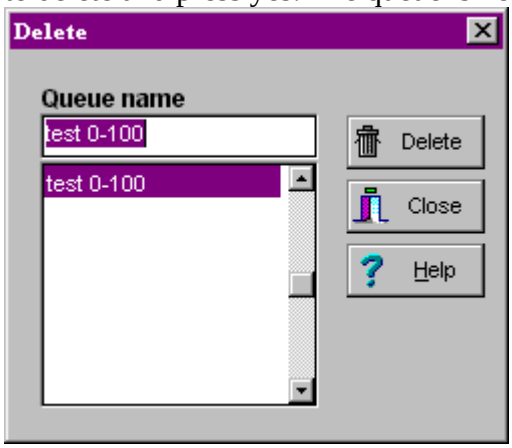


figure 5 Delete queues

1.2.2.2 Analyse, evaluate and print

The analyse option is used to analyse the whole queue. When an autosampler is used the queue will be analysed fully automatic. When there is no autosampler the interactive autosampler will ask you to insert a sample before each measurement. At that moment the measurement is started. If you inserted the sample press OK in the interactive sampler and the measurement screen pops up.
When you want to evaluate the whole queue again because you changed a parameter in the evaluation method or use another calibration queue you can use the option evaluate. This can take a while, because every sample has to be calculated again as well as the calibration line if present.
The print option will give a queue report of the whole queue. This does not include the graphics. Graphics are drawn in the sample report (see chapter sample parameters).

1.2.3 Options menu

In the options menu there are three menuitems. Analysis, evaluation and setup. The option analysis is to configure an analysis method, the evaluation is to configure an evaluation method and the setup option is to configure the software according to your hardware.

1.2.3.1 Analysis method

After selecting analysis three pages and six buttons are displayed. In the analysis method the parameters for your analysis can be set. The parameters are direct saved under the method name as you enter them. That is why there is no ‘save’ button. The ‘close button will close this screen (all settings are saved). The ‘new’ button will allow you to create a totally new method. Be sure to fill in and select all required parameters in a new method also for the sampler (see for required parameters the parameters chapter in the analyser and autosampler chapter). The ‘save as’ button allows you to copy this method and save it under a new name. The ‘delete’ button is used for deleting methods. The ‘print’ button will print out an analysis method report.

On the page ‘Description’ you need to enter the element that you are analysing (C for carbon, N for Nitrogen, Cl for Chlorine and S for Sulphur). The method ID must be chosen. You can find the method ID on the ID connector of the introduction module. The description of the method is an optional field.

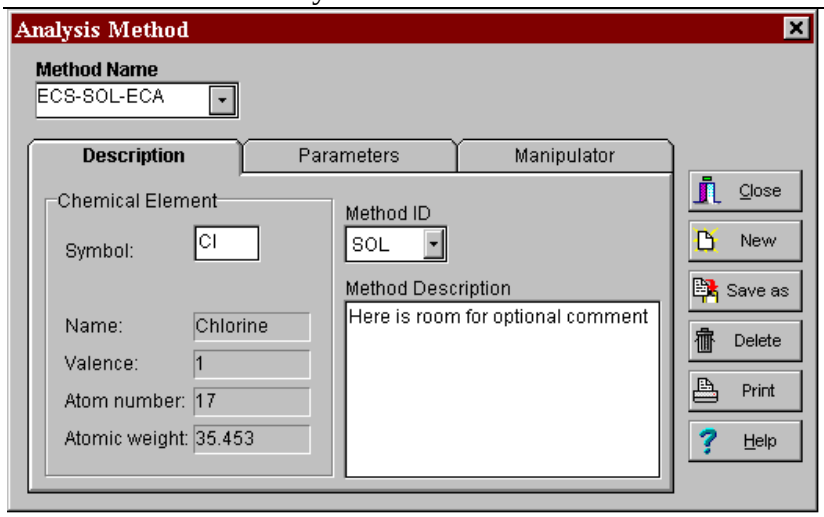


figure 6 Analysis method description

On the page ‘Parameters’ the temperatures, cooling and measuring time for the analyser can be entered when the device analyser is checked. Do not forget to fill in and select all necessary parameters and no additional parameters. If you forget to select a parameter or selected a parameter that is not meant for this device you will get a ‘missing parameter error’ in the status bar when you start the analysis with this method. The required and optional parameters are found in the chapter of the analyser. If you forget to fill in a parameter you will get the error: ‘” ” is not a valid integer’ in the status bar of the analyser when a measurement is started. This also occurs when you forget to fill in a parameter in the boat program .

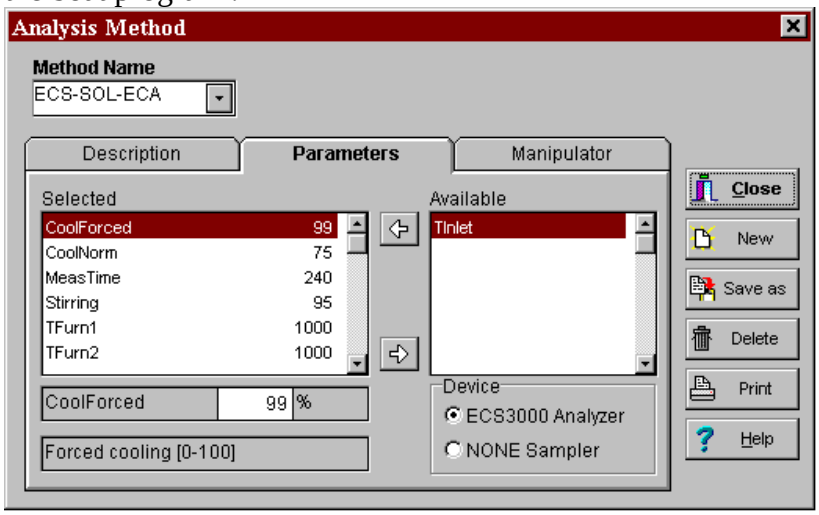


figure 7 Analysis method parameters

For the parameters of the sampler device check the sampler (on the figure: NONE Sampler). Be sure to fill in and select all necessary parameters and no additional parameters also for the sampler (even if you do not use an autosampler you need to select and enter

three parameters). If you forget to select a parameter or selected a parameter that is not meant for this device you will get a ‘missing parameter error’ in the status bar of the autosampler when you start the analysis with this method. The required and optional parameters are found in the chapter of the autosampler. If you forget to fill in a parameter you will get the error: ‘” ” is not a valid integer’ in the status bar of the autosampler module when a measurement is started.

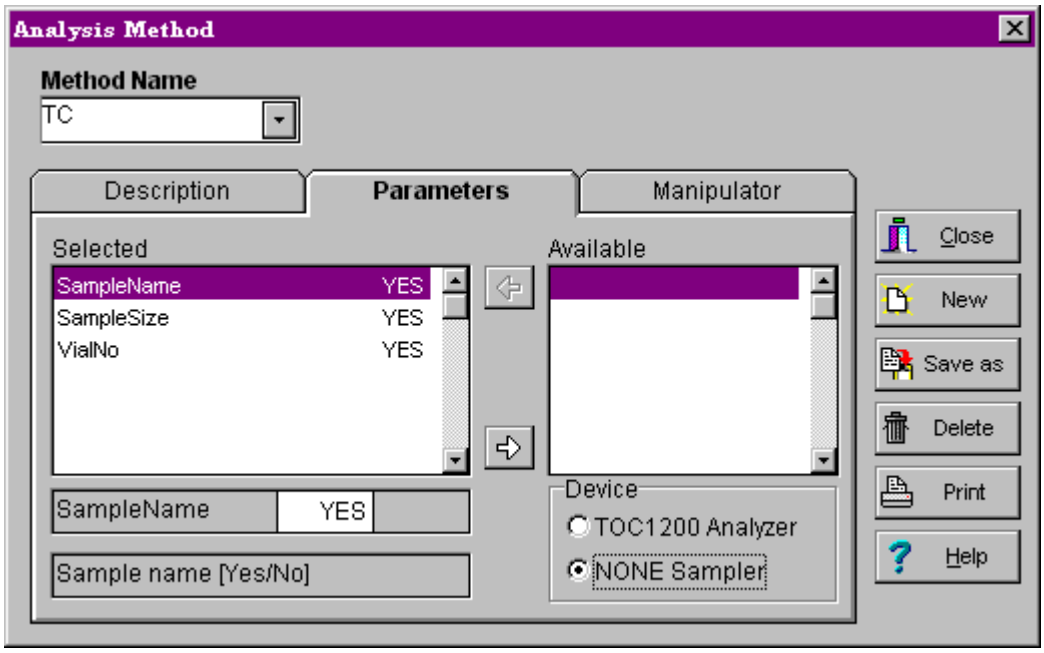


Figure 8 NONE sampler parameters

On the page ‘Manipulator’ the settings for the boat can be entered. If you do not use the boat make sure there are no records (steps). You can add a boat step after the last step with the ‘add’ button. To insert a step above the selected step use the ‘+’ button. To delete the selected step you can use the ‘-‘ button. The last step should always end in the zero position. If the time needed for the boat program exceeds the measurement time the time needed for the boat program will be the measurement time. If there is a step in the boat program that you do not need you will have to delete the step. If the step stays in the boat program with a parameters missing you will get the error: ‘” “ is not a valid integer’ when you start an analysis.

The name of the step can be any text. The position defines where the boat will go to and the speed defines at what speed the boat will go to the entered position. The pause states how long the boat waits at the desired position.

If a liquids autosampler is used (ELS2100 or ELS3000) make sure there is no boat program. If the boat program is present the measurement starts **after** the injection.

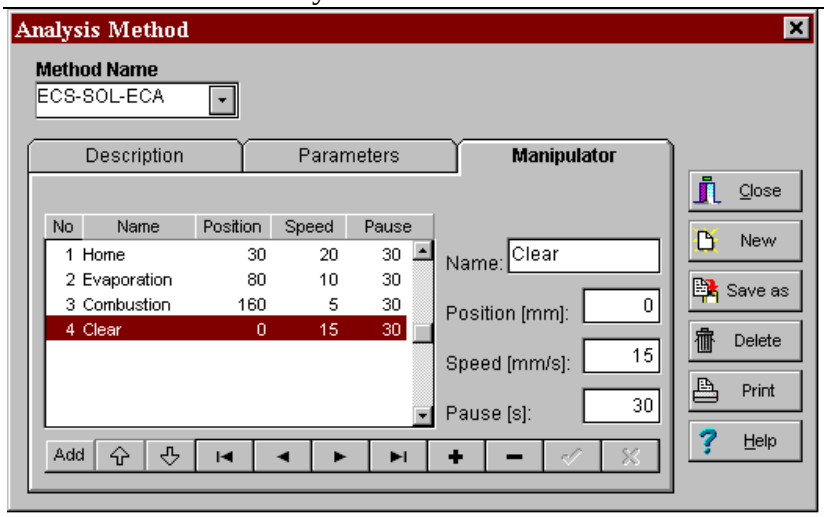


figure 9 Analysis method boat program

1.2.3.2 Evaluation method

After selecting evaluation from the options menu a screen with two pages pops up. On the 'Description' page optional comment about the evaluation method can be entered. On the 'Parameter' page the parameters can be defined to recognise the beginning and the end of the peak and how the calibration should be done. On the parameters page the first parameter is the calibration order. This is the way the calibration is done:

None: There is no calibration used. Only coulometric values are calculated.
1 st: A straight line is fitted on the calibration samples
1 st (0,0): A straight line is fitted on the calibration samples and through zero (0,0)
2 nd: A second order line is fitted on the calibration samples
2 nd (0,0): A second order line is fitted on the calibration samples and through zero (0,0)

The rest of the parameters define how to recognise the start of the peak:

Time Window: How many consecutive points (seconds) should have an increase of at least the threshold 1 and 2 to define the start of a peak.
Treshold0 [%]: Percentage of the value at the top of the peak that the signal should return to baseline to end the integration
Treshold1 $[dy/dt]_2$: The first deviation of the peak which indicates the start of the peak
Treshold2 [dy/dt]: The second deviation of the peak which indicates the start of the peak

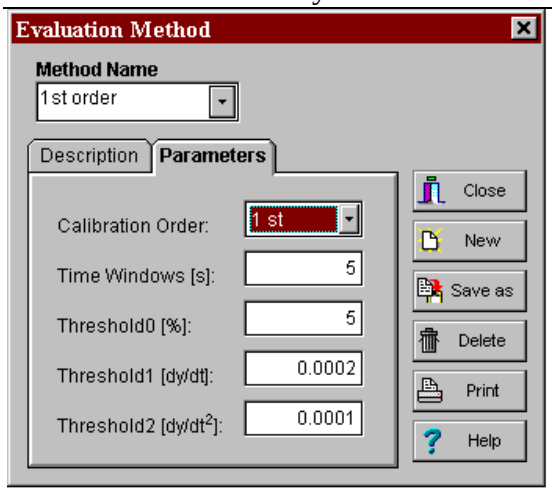


figure 10 Evaluation method parameters

1.2.3.3 Setup

In the setup menu you can select which hardware you are using. Do not select a device that is not attached to this computer. This can cause errors and in some cases it can cause damage to the device.

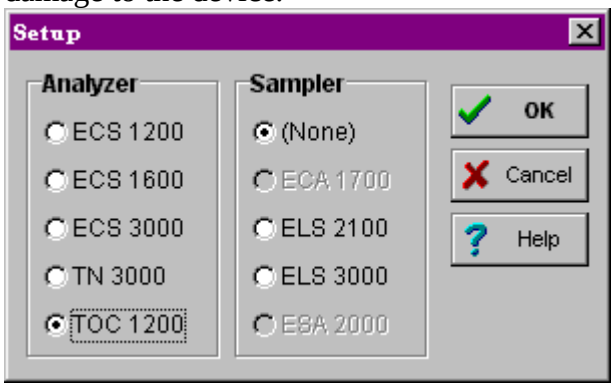


figure 11 Hardware used

1.3 Interactive autosampler

When no autosampler is used the None sampler (or interactive sampler) is loaded. In the analysis method parameters the three parameters below have to be entered. If they are not selected a 'missing parameters error' will be displayed in the status bar of the interactive sampler module when a measurement is started (see also Figure 8 NONE sampler parameters).

Required parameter	**Value**
Samplename	YES
Samplesize	YES

Vialno	YES

1.4 Exporting queue report to other format

To export a queue report to another format you can use the Reportsmith tool. This program can export the queue in the following formats:

Excel file	*.XLS
Text file	*.TXT
Lotus123 file	*.WK3
Comma Delimited file	*.XLS
Data Interchange Format file	*.XLS
Quattro file	*.WKQ

To open the Reportsmith go to the reportsmith directory (RS_RUN) and start up RS_RUN.EXE or the Run time viewer in the start menu. Now the main screen of the reportsmith pops up.
Select open in the ‘File’ menu and open the file c:\euroglas\run\queue(.rpt).

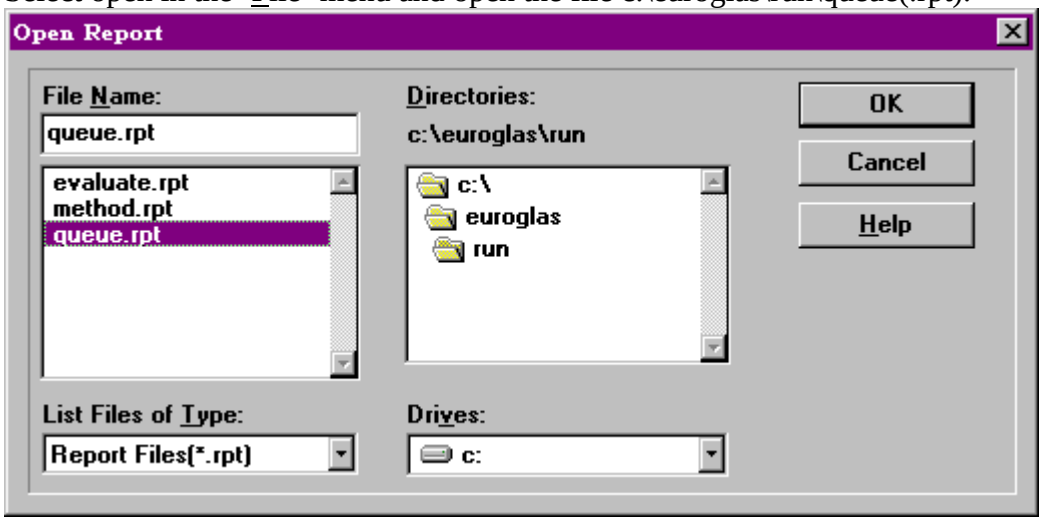


figure 12

When it asks for a password enter ‘masterkey’(be sure that you spell it correct and use only small letters).

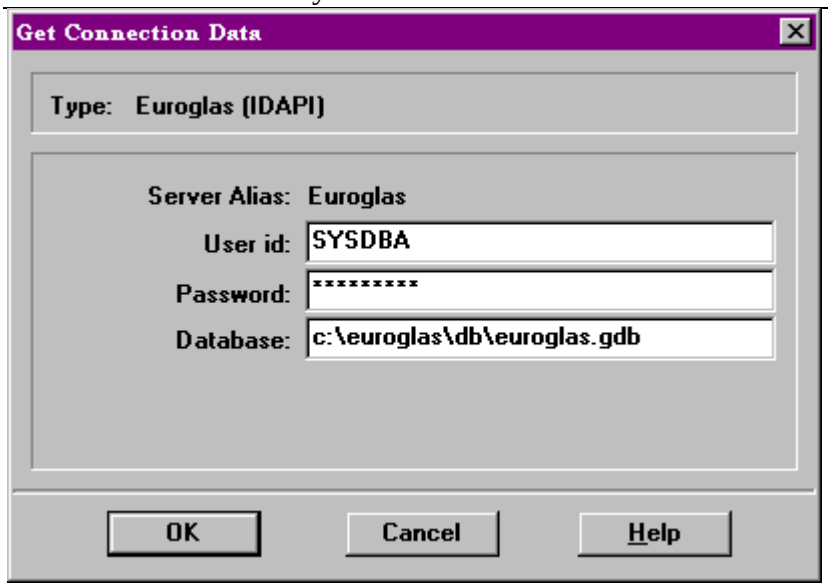


figure 13 Entering the password

You can now choose which queue you want to export. When you have made your choice the report comes on the screen. Now you are able to print the queue with the print button and you can select 'Save As…' from the 'File' menu to save the queue with another name and in another format.

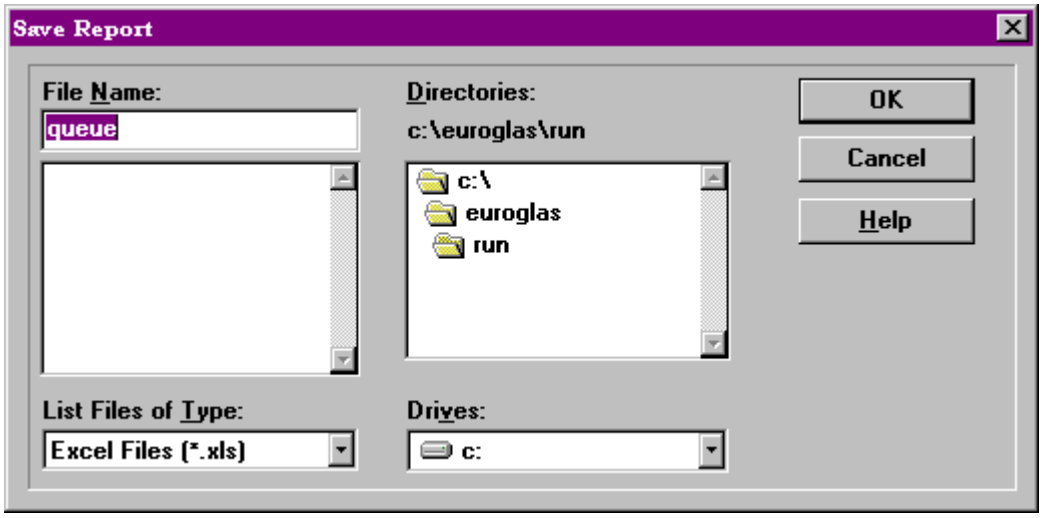


figure 14 Save a queue report in Microsoft Excel format

1.5 Backup

The data of the Euroglas Windows software is stored in one single file. In this database are the settings for the methods, the queues and the measured data of the samples. This is the file Euroglas.gdb (normal in the directory c:\euroglas\db\euroglas.gdb). All methods and data is stored in this file.

To backup the data from this file there is a database tool: The Interbase Server manager. This tool can be found in the start menu in the euroglas menu (Windows™ 95) or in the folder euroglas (Windows™ 3.1) with the name IBMGR. When you start up this tool you get the following screen.

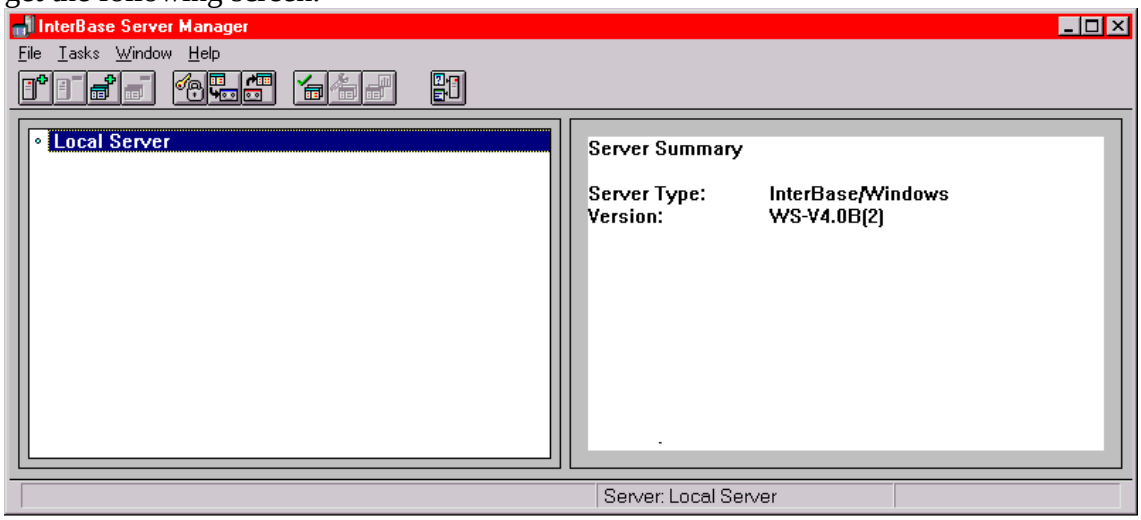


Figure 15 Interbase server manager (IBMGR)

To start a backup select backup from the 'Tasks' menu. Now get the database backup screen will be shown. Enter the location of the database in the backup source database path. Normally this will be c:\euroglas\db\euroglas.gdb. In the options menu only the transportable format must be selected, the other options should not be used. The backup destination can be anything you want (In the picture c:\backup\22-07-98.bak). This can be on a floppy disk if the backup file is not too big, on a network drive or on the harddisk. Only 8 characters can be used for the destination file.

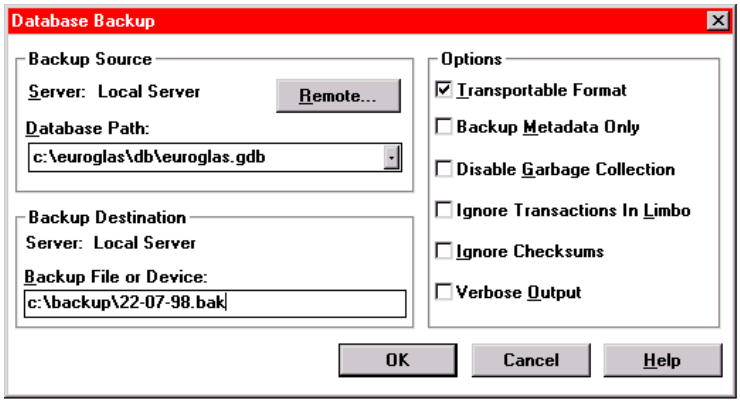


figure 16 Back up a database

To restore a database that has been backed up you must select restore from the 'Tasks' menu. In the restore source the location of the backup file must be entered. The restore destination must be the place where the Euroglas.gdb file is. This is normally c:\euroglas\db\euroglas.gdb. When the euroglas.gdb file already exists the option replace

existing database must be selected, the other options should not be used. **Be careful because you will lose all data from this file when it is overwritten (Method settings, queues and sample data).**

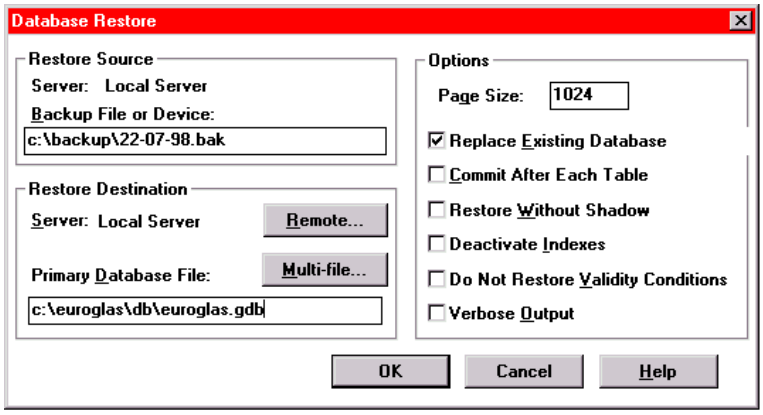


figure 17 Restore a back up database

1.6 ECS analyser module

In the ECS analyser module the maintenance of the ECS systems can be performed. Here the temperatures and the signal can be monitored. Note that to start an actual analysis the controller must be used. You can manually set the temperatures of the ovens here, the time of a baseline and move the boat (manipulator). All values are overruled by the parameter settings in the analysis method when an analysis is started from the controller. This module is not able to save any data, only the controller can do this.

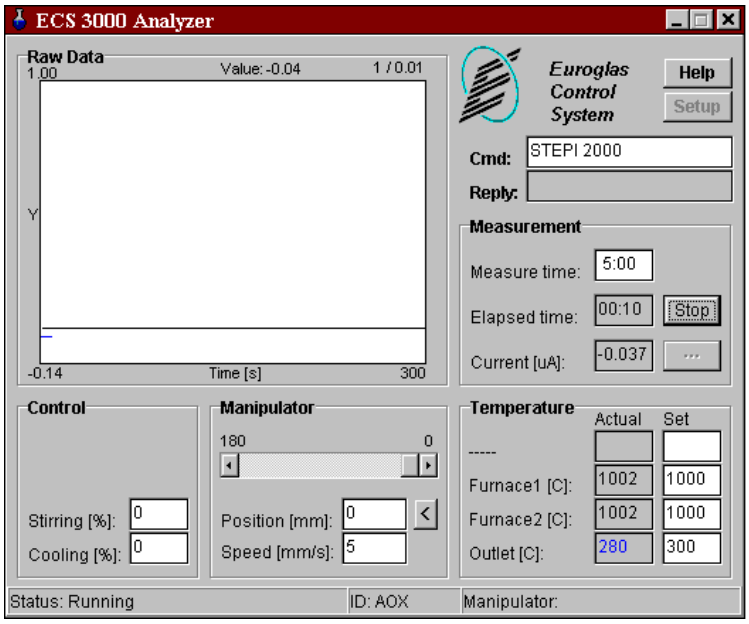


figure 18 ECS 3000 analyser screen

1.6.1 Main screen

1.6.1.1 Raw data and measurement

The raw data screen displays the graphic of the signal. When you press ‘start’ be a baseline of 5 minutes will run. If a longer baseline is needed the time can be increased up to 30 minutes. Shorter baseline is also possible.
The signal from the ECS systems is the current in µA. With the … button you can also select other signals for maintenance on the IOC card for Euroglas service engineers.

1.6.1.2 Manipulator

You can move the boat with the manipulator. This is done by setting a speed and a position and then press the ‘<’ button to let the boat go to the position entered. The position can also be entered using the slide bar.

1.6.1.3 Control and Temperature

In the ‘Temperature’ menu the temperatures can be set by entering the temperature in the ‘set’ box. The oven will now heat or cool until the desired temperature is reached. When the actual temperature is displayed in red the oven is still too hot, when the actual temperature is displayed in blue the oven is still too cold. When the actual temperature is black the temperature is in range (within 5% or 10 degrees tolerance).
In the ‘control’ menu the cooling of the introduction module can be set from 0 to 100%. The stirring in the measurement cell can be set from 0 to 100%.

1.6.2 Analysis method parameters

The analysis method parameters have to be set in the analysis method (See chapter Analysis method).

Required	**Range**
Chemical element	Cl/S
Method ID	SOL/AOX/EOX/POX
Coolforced	0-100
Coolnormal	0-100
Meastime	0-30 min
Tfurn1	0-1500
Tfurn2	0-1500
Toutlet	0-500

Stirring	0-100

Required (POX and EOX only)	**Range**
Tinlet	0-100(POX)/0-700(EOX)

1.6.3 Setup

Behind the setup button there are three ‘tab’ pages in the ECS3000: ‘Device’, ‘UNCO’ and ‘IOC’. In the ECS1600 and ECS1200 there is no ‘Device’ page because they do not have digital electronic flowmeters. The ‘UNCO’ and ‘IOC’ page are for the setup of the system parameters, the UNCO controller board which is attached to the com port and the IOC board in the computer for the data acquisition. When the setup is entered and ‘OK’ is pressed the data acquisition board, the com port and the UNCO will be reinitialised. **The settings for the UNCO do not need to be changed after installation and must only be changed by Euroglas service engineers.**

1.6.3.1 IOC

There are four parameters on the ‘IOC’ tab page. The base address must always be $0300 and the time out 3000µs.
The Bias must be –0.315 V for chlorine measurements and 0.135 V for sulphur measurements. The gain can be set from 0 to 100 %. The gain is a percentage of the maximum current that can flow from the cathode to the anode. This means that with a higher gain the current is higher and the titration is faster. When the gain is set too high you will get ‘overshoot’.

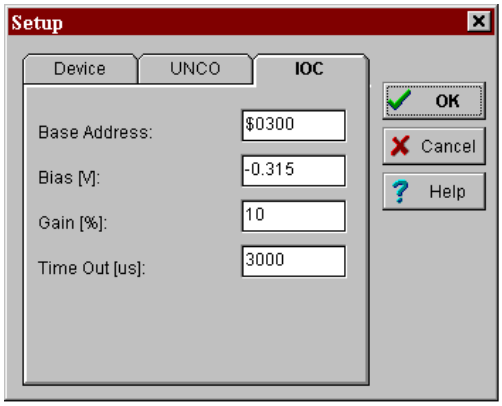


figure 19 Set up ‘IOC’ parameters

1.6.3.2 Device parameters

The flowmeter settings are only necessary when you have electronic flowmeters in your system. If you do not have digital electronic flowmeters you can leave the values at zero. The offset is the raw tuning of the flowmeters, the flow is for the fine tuning. The Extra oxygen is only used with a turbo tube. When you are not using the turbo tube leave the values of the extra oxygen at zero.

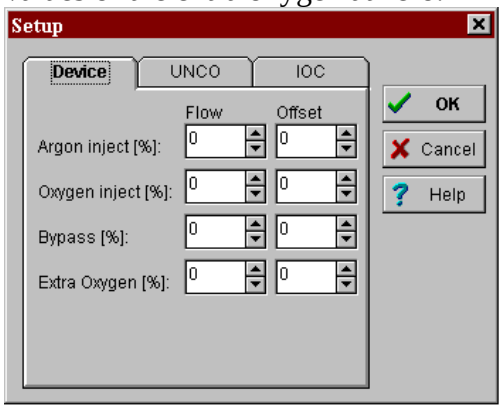


figure 20 Set up flowmeters

1.7 ELS3000 autosampler module

1.7.1 Main screen

The ELS3000 autosampler module is used for maintenance only. All functions will normally be controlled by the controller. In the ‘Cmd’ box you can see the commands that are send to the sampler and in the ‘reply’ box the replies from the sampler are visible.

1.7.1.1 Pump and valve

Here you can fill in a volume and a speed to fill or empty the pump with.
The valve can be in the position ‘needle’ to let the fluid go to the needle and in the wash position so that the pump is directly connected to the wash bottle.

1.7.1.2 Sample position and needle

In the ‘vial position’ box you can enter a vial number where the sampler must go to and press enter. With the ‘needle up’ the needle will go up to its vertical home position. To let the needle down enter the number of steps (about 3700 steps will put the needle in the vial) in the box next to down and press ‘down’.

1.7.1.3 Buttons

The ‘init’ button will initialise the sampler and gives the version number of the eeprom of the sampler in the reply box.
The ‘get’ button will get the sample using the settings selected in the setup (see chapter set up) from the selected vial.
The ‘inject’ button will inject the sample in the injection port.
The ‘break’ button can interrupt the analyser. After a ‘break’ you have to ‘init’ the sampler again.

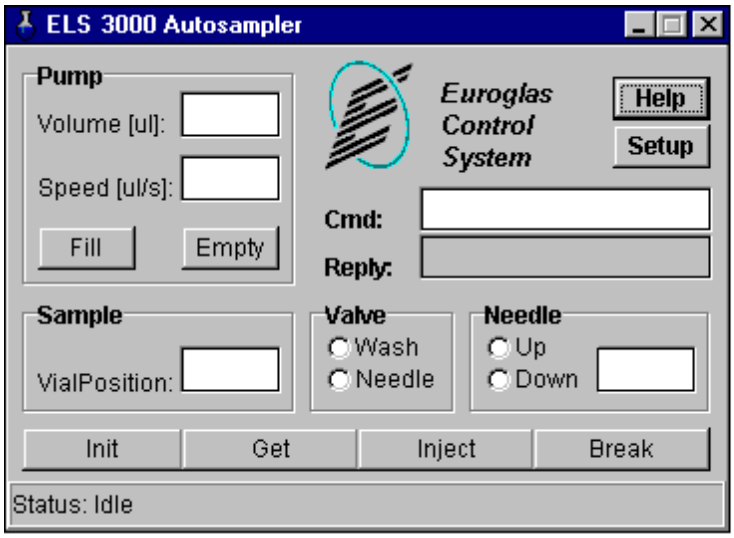


Figure 21 Main screen ELS3000

1.7.2 Setup

Behind the ‘setup’ button you can enter the optional values of the parameters for using the ELS3000 without the controller. The parameters selected in the analysis method will overrule these parameters.
The ‘tab’ page with the com port settings should not be changed after installation.

1.7.2.1 Parameters

SampleVol

The sample volume can only be used here for manual use of the ELS3000 without the controller. The parameter ‘sample volume’ in the analysis method parameters should always be ‘YES’ (see also chapter analysis method parameters). This means that the sample volume is taken from the sample parameters from the queue

LineVol

This is the volume of the tubing running from the injection port to the oven. It is used to determine how many fluid must inserted after the sample and be drawn back from the line after an analysis.

AirVol

The air volume is the volume of the air bubble between the sample and the wash solution to prevent the mixing of the sample and the wash solution.

WashVol

The wash volume is the amount of wash volume taken to wash the needle in the wash cycles before the analysis.

Washcycles

The number of times the needle and the tubing is washed before an analysis.

Equitime

The equilibrium time is the time needed to equalise the pressure difference within the sample tube/needle after it is sucked up.

InjPause

The inject pause is the pause between the injection of the sample and the draw back of the line vialume.

InjSpeed

The speed at which the sample is injected.

Syringespeed

The speed at which the sample is taken from the vial. This parameter should not be selected in the method parameters in the controller.

MoveSpeed

The speed at which the arm moves horizontally. This parameter should not be selected in the method parameters in the controller.

Needlespeed

The speed at which the needle is moving up and down. This parameter should not be selected in the method parameters in the controller.

NeedleDepth

The depth at which the needle moves when entering a vial. This parameter should not be selected in the method parameters in the controller.

Mixwith

Use mix with air if you want to inject the sample amount of air in the vial before the sample is sucked out of the vial. This to prevent that a vacuum forms in the vial.

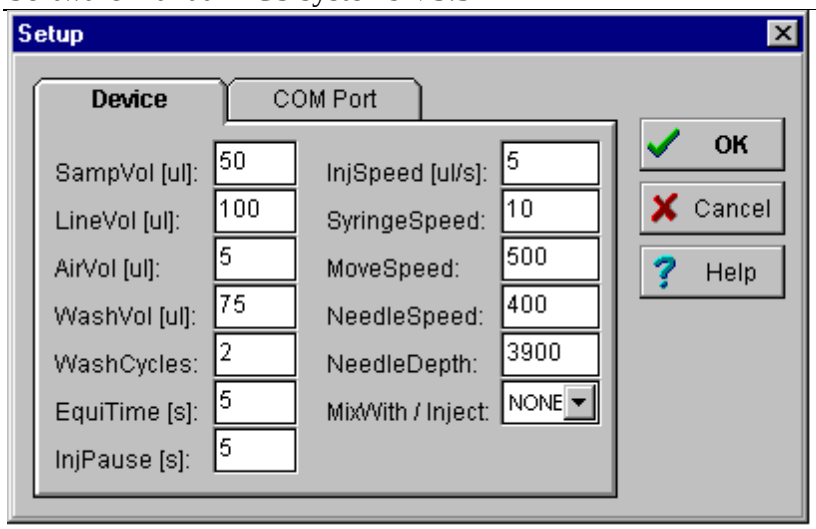


Figure 22 Set up 'Device' parameters

1.7.3 Analysis method parameters

The analysis method parameters must be set in the analysis method (see chapter analysis method) in the controller. The InjectPause parameter is the pause between injecting the sample and the draw back of the sample.

Required	**Value**
Samplevolume	YES
Vialno	YES
ConcurrentSampling	YES

Optional	**Range**
Washcycles	0-9
Wash volume	0-248
Air volume	0-248
Equilibrium time	0-60 s
Line volume	0-248
Inject speed	0.125-10
Mixwith	AIR/NONE
Injectpause	0-60 s

2 Installation

2.1 Computer

The minimum system requirements for the Windows software are a 486 processor with a speed of 66 MHz and a memory of at least 16 Mb RAM. Do not try to install the software on a computer with less capabilities because the software will not run properly.

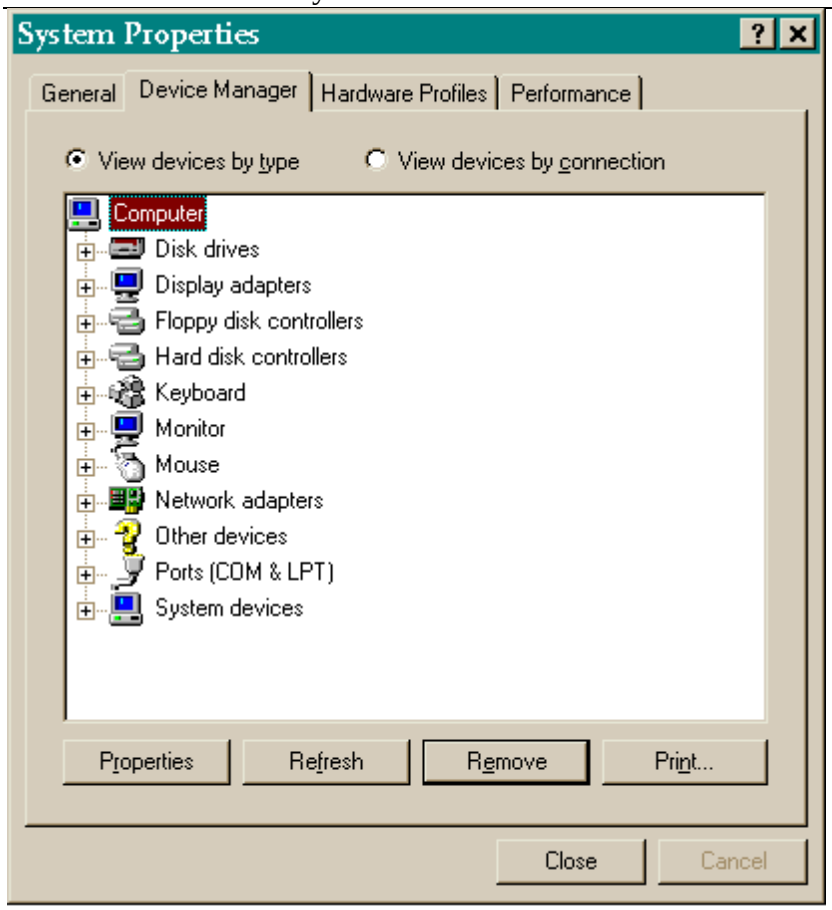
Further the computer has to have 1 **free** com port for the analyser and 1 **free** com port for an ELS2100 or ELS3000 autosampler. If there is a mouse connected to a com port this means that it is **not** a free com port.

Then there must be a free ISA slot in the computer for the CIO card (TOC machines) or IOC card (TN and ECS machines and the ECA1700 and ESA2000 autosampler). The IOC card has also the restriction that base address 300 must be free for the analysers and base address 240 must be free for the ESA2000 or the ECA1700. The CIO card can be addressed on different addresses but needs an interrupt request (IRQ). Explanation to check the address and interrupt is in the windows chapter.

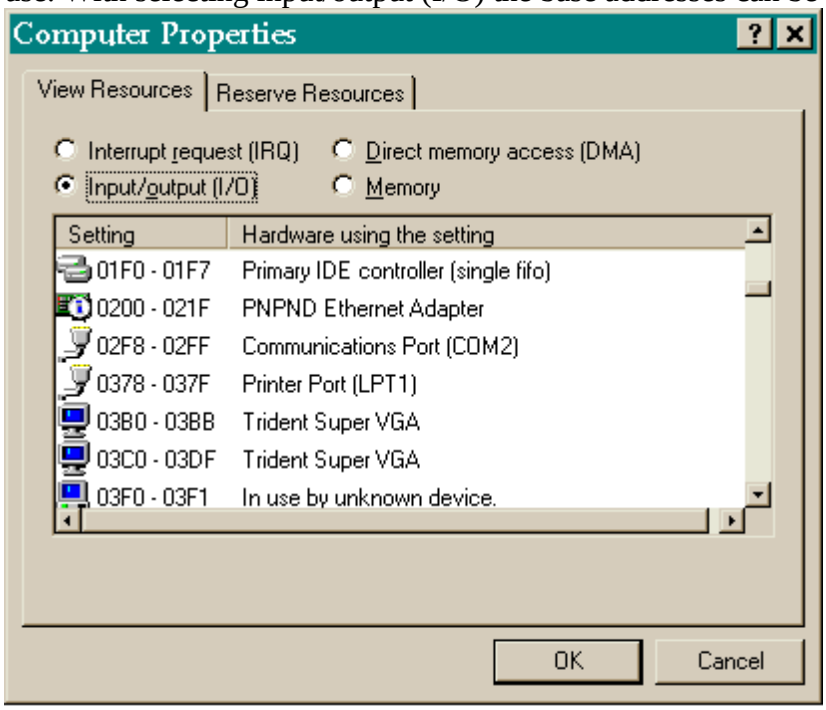
2.2 Windows

2.2.1 Windows 95/98

To determine the use of base address 300 (for TN and ECS analysers) or the base address 240 (For ECA1700 and ESA 2000 autosamplers) the following procedure can be done. Press the start button and select settings and configuration. Now open the system icon. Now select the ‘tab’ page device manager and select ‘computer’.



In the next screen ‘interrupt request’ can be selected for checking the interrupts (IRQ) in use. With selecting input/output (I/O) the base addresses can be displayed.



2.2.2 Windows 3.1

In Windows 3.1 MSD (Microsoft Diagnostics) can be used to determine free base addresses. Therefore open c:\windows\msd.exe. MSD will now examine your system. When it is ready select IRQ settings and the screen will tell you which interrupt (IRQ) is used and which addresses are in use.

2.2.3 IOC card (TN and TOC)

The IOC card is an ISA card for the computer. This card handles the data acquisition of the TN3000 and the ECS systems and the communication with the ECA1700 and ESA2000 autosamplers. It uses base address 300 for the data acquisition of the TN and ECS systems and base address 240 for the ECA1700 and ESA2000 autosamplers. For the ECA1700 and ESA2000 windows software a IOC2 card is needed. This can be detected by the fact that and IOC2 card has 2 'Lattice' chips and the IOC(1) card has only 1 'Lattice' chip. No extra drivers are needed for the card.

2.3 Installshield

The Euroglas windows software is installed with an installshield which will automatic install the software.

2.3.1 Procedure

1 Insert the first diskette of the Euroglas diskettes and run the SETUP.EXE. Use default directories and typical installation . The Serial key can be any number. After installation shut down windows and restart the computer.

2 Now you can go with the start button to programs-Euroglas-controller and the controller program starts. Now you have to change the device in options-setup.

2.3.2 Updates

Updates of the software are installed with update files. These can only be used when the normal installation procedure is done.

2.3.3 Procedure

Updates are also done with an installshield. Updates from version 5.x will automatic be done. From older versions please contact Euroglas.

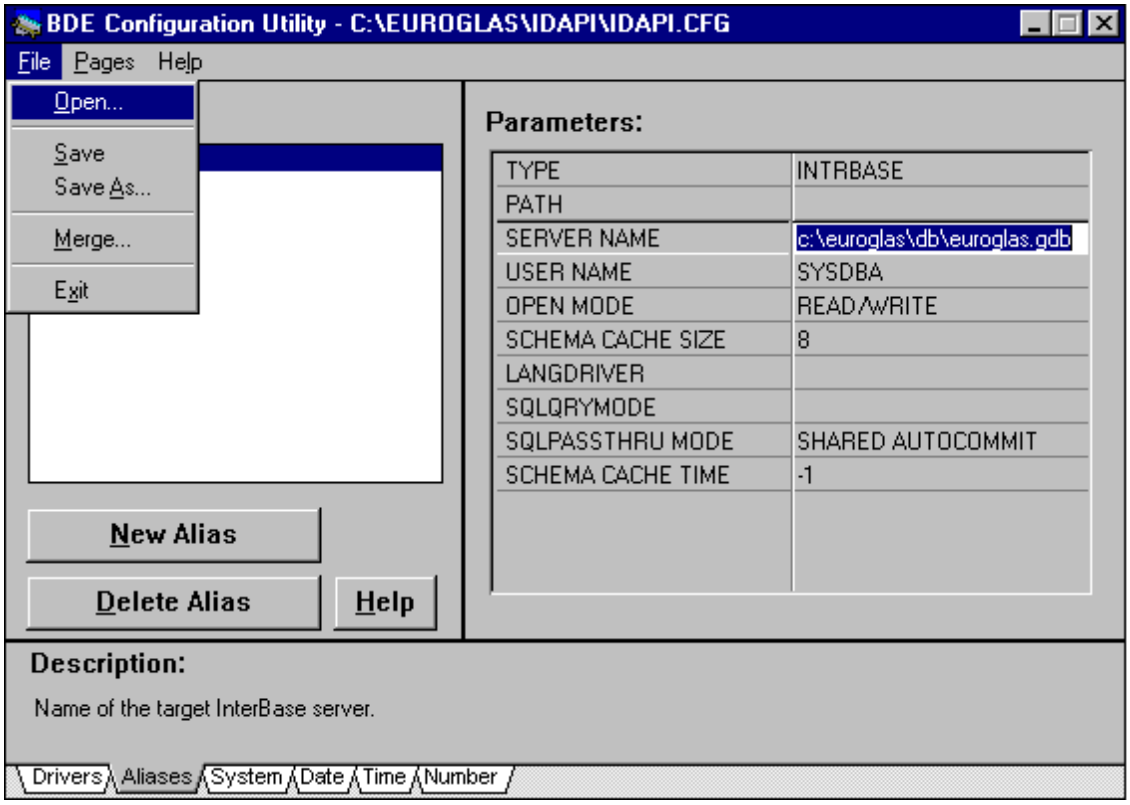
2.4 Com ports

The analyser needs one com port. The ELS2100 and ELS3000 need another one. If you have a mouse connected on a com port this com port is not available for an analyser or autosampler. The software is not able to work without a mouse. To get communication with the analyser the right com port must be selected in the setup of the analyser. On the 'tab' page UNCO the right com port can be set. The other settings always stay the same. In the

set up of the ELS2100 and ELS3000 also the right com port can be set on the ‘tab’ page com. If there are any troubles with the communication you can press the ‘set up’ button. The set up screen now comes up. In this screen press ‘OK’. The com port is now reinitialised.

2.5 BDECFG

The program BDECFG (Borland database engine configuration) is used if any problem with the connection to the database will occur. If any problems with connecting to the database occur (there will be the error message: username/password not correct) check the settings in the following screen. Pay attention tothe servername. This should be: ‘c:\euroglas\db\euroglas.gdb’ if you installed the software in the default directory. Further pay attention to the line in the upper blue bar(‘C:\EUROGLAS\IDAPI\IDAPI.CFG’). When there is something else in this line select open from the file menu and open the file IDAPI.CFG. Then select save in the file menu. When the program asks if you want to change the system.ini press yes.



3 Hardware Calibrations

3.1 ELS2100

3.1.1 Software

The software calibration is only for calibration of the TC inlet, Waste position and the IC inlet and small changes on the tray. The tray should first be hardware calibrated.

A wizard will guide you through the calibration. When the software asks to move the needle to a certain position this can be done with the arrow buttons in the ELS2100 main screen. The use of the arrow buttons is explained in the software manual. The calibration of the ELS2100 is very delicate so be careful.

The first position where the software asks to go is the TC inlet. You can loosen the needle and press the TC button (the needle is loosened because if the TC position is wrong calibrated the needle will crash). The needle guide will now go to the TC port. You can adjust the position with the arrow buttons. When the x and y are set right set the needle in the lowest position with the software. Now you can place the needle in the TC port as low as needed. Now you can mark the depth of the needle with a marker on the needle. To prevent the needle from crashing the needle can now be released for further steps in the calibration.

The next position will be the waste position. The waste position is between the IC scrubber and the TC inlet. Pressing the W(aste) button the sampler will move there. Adjust the x and y positions with the arrow keys and then tighten the needle on the marked position to determine the z position. When the z position is reached release the needle again.

The next position will be the IC inlet position. Follow the same procedure as for the waste position but leave the needle tight in its place.

Then the software will ask to go to position 1 on the tray. Enter 1 in the vial number box and press enter. (The needle will go to the x and y position of vial 1 but not to the z position. That is why the needle does not have to be released in this stage.) With the arrow buttons the last millimetres of the x and y positions can be calibrated as well as the vial depth. The needle should be in the vial 1 (on the bottom) before ‘next’ is pressed.

The same procedure can be followed for vial 78.

The last question of the software asks if you want to save the data. The calibration data is only saved when ‘Yes’ is pressed here.

3.2 ESA2000

3.2.1 Software

The calibration of the ESA2000 is done by a wizard. This means that the software tells you what to do.

First the software moves the hand, arm and carousel home. Then the carousel is moving to position 10. The software now asks you to adjust the carousel if necessary. To be more precise you may set the hand to the carousel.

When ‘next’ is pressed the software moves the arm to the introduction module. Adjust the arm if necessary. Here also you may set the hand down to see if the position is reached.

The next step is to lower the hand in the introduction module to determine the steps to the introduction module.

The carousel, hand and arm are now set home again. The software now asks you to set the carousel, arm and hand to position 1. Adjust the arm and carousel position and set the hand down around the frit.

The next two steps the software asks to go to positions 11 and 27. The easiest way to do this is first put in the sample position 11 respectively 27 and press enter. Now you only need a slight adjustment.

The last question is if you really want to save the calibration settings.

Sometimes the determination of the maximum carousel steps is not accurate enough. This can be fixed in the ESA2000.INI file. This file is in the windows directory. If you open this file you see a lot of parameters. You have to change the MAX_CAR_STEPS to 4550.

3.3 ECA1700

3.3.1 Software

The calibration of the ESA2000 is done by a wizard. This means that the software tells you what to do.

First the ECA1700 is setting the plunger and carousel at the home position. Then it will ask you to move the plunger down so the oven will be closed. (about 8000 steps)

When ‘next’ is pressed the ECA1700 will move the carousel to position 37. Adjust the carousel so that position 37 is right above the plunger. You may put the plunger down to be more precise.

Then you will have to put the plunger down so the sample will be pushed out of the tube. (about 11500 steps)

4 Troubleshooting

4.1 Error messages

Error: Unable to load CBW.DLL

- If an TOC1200 is used the ‘Instacal’ is not installed or configured. See chapter CIO. If another analyser is used, change the analyser in the setup of the controller. See chapter options menu – set up of the software manual.
- In the autoexec.bat file the c:\cb directory (instacal directory) should be after the ‘Set path’ command if a TOC1200 is used. (Set path c:\euroglas\iblocal\bin;c:\euroglas\idapi;c:\rs_run;c:\cb)

Error: Invalid boardnr

- Instacal is not configured right. See chapter CIO.

Username/password not correct

- Settings in the BDECFG are wrong (see chapter BDECFG)
- The ‘set path’ command in the ‘autoexec.bat’ file does not contain the BDECFG directories. (When the software is installed in the default directory this will be: ‘Set path c:\euroglas\iblocal\bin;c:\euroglas\idapi;c:\rs_run’).
- The ‘Set path’ command in the autoexec.bat is overruled by network login script. With some networks a loginscript is used. When this login script also contains a command like ‘set path’ the ‘set path’ from the ‘autoexec.bat’ file is overruled.

Error: Unable to load RS_RUN

- The ‘set path’ command in the ‘autoexec.bat’ file does not contain the RS_RUN directory. (When the software is installed in the default directory this will be: ‘Set path c:\euroglas\iblocal\bin;c:\euroglas\idapi;c:\RS_RUN’).

Error: “ “ is not a valid integer

- In the analysis method a parameter is not entered for the analyser. When a parameter is selected it needs a value. (see chapter analysis method of the Euroglas software manual)
- In the analysis method a parameter is not entered for the sampler (also if you have no autosampler you have the interactive sampler.) When a parameter is selected it needs a value. (see chapter analysis method of the Euroglas software manual)

- In the analysis method a parameter is not entered for the analyser in the boat program. In each step of the boat program the name, pasition, speed and pause must be entered. (see chapter analysis method of the Euroglas software manual)

Error: Missing parameters error

- One of the required parameters in the analysis method is not selected. If the missing parameter error is in the status bar of the analyser the parameter is missing in the analyser parameters and when the missing parameter error is in the status bar of the sampler the parameters is missing in the sampler. (see chapter analysis method of the Euroglas software manual)
- A parameter that is not for the device is selected. This means a parameter that is not in the list of optional and required. If the missing parameter error is in the status bar of the analyser the parameter is too many in the analyser parameters and when the missing parameter error is in the status bar of the sampler the parameters is too many in the sampler. (see chapter analysis method of the Euroglas software manual)

Error: Floating point devide by zero

- Chemical element was not filled in or not filled in right in the parameters for the analyser. Be carefule with capitals and non capitals. Chlorine = Cl , Sulfur = S , Nitrogen = N , Carbon = C . (see chapter analysis method of the Euroglas software manual)

Error: Floating point error in JRD.DLL

- Happens at the strangest moments. The best thing to do is restart the whole computer. We are working on this bug.

4.2 Printing problems

No graphics in sample report

- This is still a bug. We are working on a solution.

After entering the password 'masterkey' the software asks to replace the connection

- Probably the password was not entered right. Be sure to use only small letters and that 'Caps Lock' is off.

After entering the password 'masterkey' the software says not enough memory

- If windows 3.1 is used add in the 'config.sys' file the line:

  'Install=c:\windows\share.exe /F:4096 /L:500'

4.3 Signal problems

4.3.1 TOC systems

No S value and/or no R value

- The datacable between the TOC and the CIO card is not prepared for the windows software. The Windows software needs another data cable to the PC. Older systems (before february 1998) need the other cable. The DOS program will also work with the new cable. The adjustments in the new cable are two extra connections in the plug in the PC. (Pin 1 connected to Pin33, Pin 2 connected to the ground.)
- Instacal can be configured not according to the hardware settings.(see chapte CIO)
- Address or interrupt (IRQ) is used by another machine. (see chapter windows)

S value and/or R value do not change

- Address or interrupt (IRQ) is already in use with another device. (see windows chapter)

Very bad noise on the baseline

- Bad CIO card
- Load defaults in BIOS

4.3.2 ECS systems and TN systems

No signal

- Bad IOC card
- Address 300 is in use by another device (see windows chapter)

4.4 Errors in the status bar

Com init error

- The com port selected does not exist (at least windows does not recognize it)
- The com port is already in use by another device (mouse or autosampler)

UNCO time out error

- Analyser is on another com port
- Analyser is off
- Analyser has still an UNCO 1.6 (can be seen it the reply box of the analyser screen) this must be at least 1.8.

Heating

- The temperatures are not yet in range to start a measurement.
- There is no communication with the analyser at the start of a measurement. (can be detected by looking at the temperatures. When they do not change at all during 10

seconds the communication is lost.) Stop the measurement and try to reinitialise the analyser by going in to the setup of the analyser an press ‘OK’.

ID method error

- No ID connector is connected (ID:error)
- The wrong ID connector is selected in the analysis method (see chapter analysis method in the Euroglas software manual.)

4.5 Other errors

All concentrations appear to be zero

- Chemical element is not enetered or not entered right in the analysis method. (see chapter analysis method in the Euroglas software manual.)

Measurement does not start

- Check for any error messages in the status bars.
- Ovens are still heating.

No communication with UNCO (no temperatures or temperatures do not change)

- Try to go to set up and press ok.
- Go to set up and press ok and immediatly turn the analyser off and on.
- Is the right com port selected.
- Is the com port recognized by windows 95