VISTACHROM SIMPLIFIED MANUAL

V1.4.4

Historic

Revision N°	Modification nature	Application date	Modified Chapters
1	Creation	21/10/2003	All
2	Auto-calibration	24/08/2004	K.5
3	Update of screenshots (Version 1.4.4)	15/02/2007	All

Editor : M.C LACOSTE	Checked by :	Agreement :
Visa :	Visa :	Visa :

CONTENTS

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Chromatotec guarantees these instruments against the manufacturing defaults during a twelve month period from the delivery date. The replacement of the defective components will be free except the transport or travel fees that will be invoiced according the current tariffs.

Chromatotec accepts no liability for damages or possible incurred losses.

Chromatotec provides a spare part service and After Sales Service. Please contact the service engineer responsible for the repair or the spare part repair. The serial number of the instrument as well as the description of the trials done and the estimated reasons of the breakdown should be given to provide you the quickest service.

Chromatotec reserves the right to modify the prices and the characteristics of these products.

A. OBJECT

Simplified manual for the Vistachrom V1.4.4 version.

B. APPLICATION FIELD

Vistachrom V1.4.4 version.

C. DEFINITIONS

D. REFERENCE DOCUMENT

Vistachrom manual (reference: SMQ 0004-06 GCSV 143 UK)
Auto-calibration implementation (SMQ 0016-00 AutoCalibration 143 UK)

E. VISTACHROM START UP

During the installation of Vistachrom into your PC, a shortcut is automatically created on your PC desktop as well as on your computer 'startup' folder. In order to launch the acquisition software, just double click on this shortcut. It is also automatically launched when opening a Windows® session.

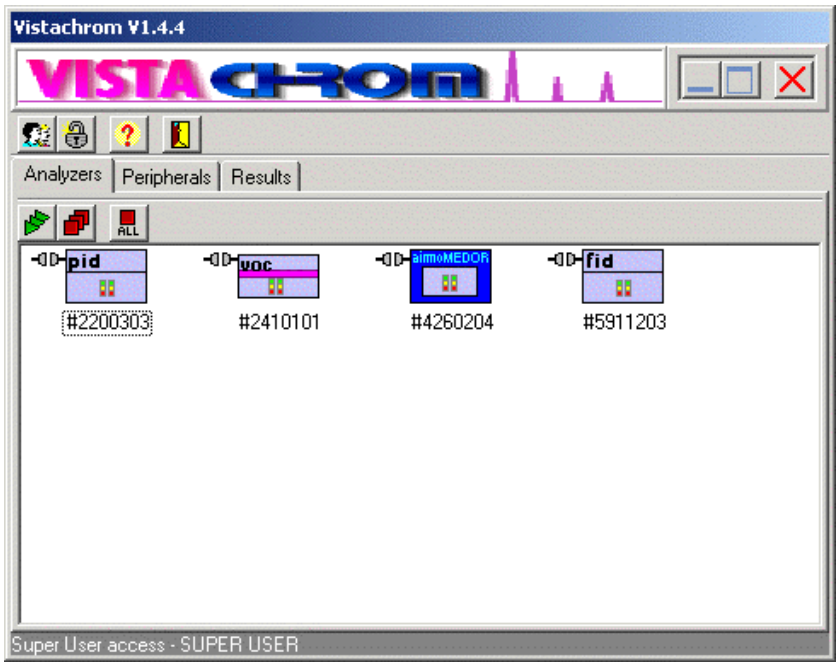
The following window opens:

In this window you only have to update two details:

- Selecting your user name in the box : **SUPER USER**
- Entering your **password** in the Password case. Then validate by clicking on the following icon  .

These details are indicated on the CDRom cover supplied with the instrument.

The following window opens:



Select your analyser by double clicking on the icon corresponding to the serial number of your instrument.

F. COMMUNICATION BETWEEN GC AND PC

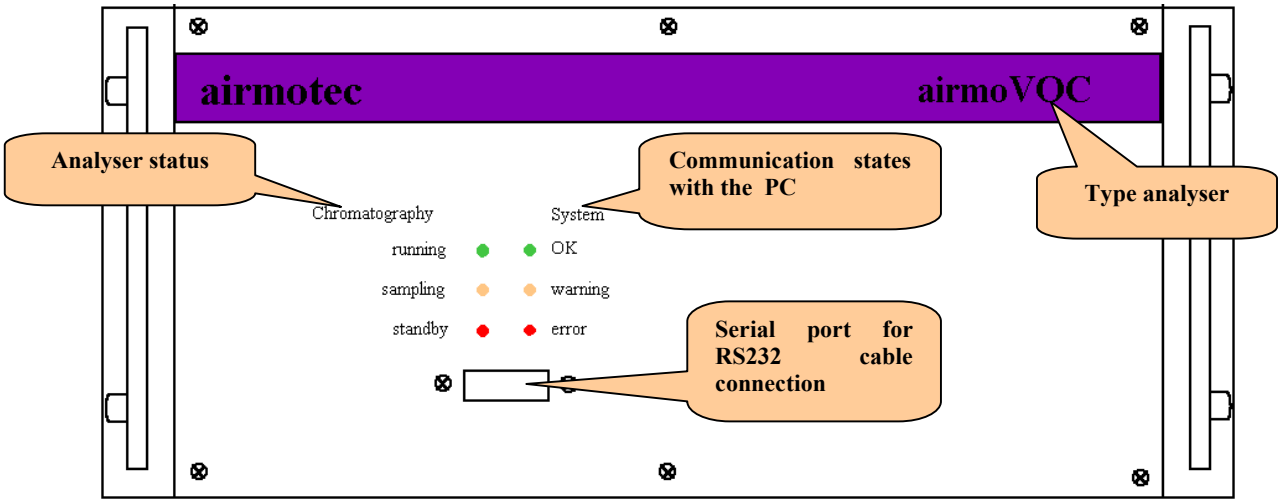
F.1. GENERAL IDEAS

There are several communication protocols:

- **A2 Protocol**: It is the protocol used by Vistachrom to communicate with the analyzer. The 'System' column LED are lighted permanently.
- **Other communication protocols OEM(mode 4), MGS1 :** The LED corresponding to the system are blinking. It is a simple protocol that allows a user to work with results. If the analyzer has been set up for one of these protocol, it would be active 30 second after the A2 communication has stopped.

The functions we are interested in and treated in this manual are realised with the **A2 protocol**. The communication between PC and GC is done with a RS232 serial cable that links the 'RS232 card' of the instrument (a second 9 points outlet is available on the rear face of the analyser) and one of the PC serial port. According to the LED state, we can deduct the instrument status in real time.

F.2. SCHEME OF A TYPE FRONT FACE



Legend :

Analyser type :

- Generally the analyser type allows to know if the instrument has a sampling system by loop or a sampling pre-concentration system. An analyser using a loop will have a measurement range from a few **ppm or mg/m^3** to several **%**. The volume of the sampling loop is fixed and has been carefully determined by Chromatotec according to your required measurement range.
- The pre-concentration system will allow to determine the compound traces ranging around **ppb or µg/ m^3**. The time and the sampling flow has been precisely determined by the manufacturer according to the requested measurement range and should not be modified except if it is requested by the Chromatotec Technical support.
- Depending to the analyser type, for example **chroma**, a **RESET** button is on the front face and will be lifted and maintained in the high position as long as the **reset** procedure is not completed.

  (The reset is completed when the **stand by**, **error and OK** LED are all lighted). After this moment the **RESET** button can be loose.

Analyser status :

"**Running**" : Lighted LED when the analyser is running
"**sampling**" : lighted LED during the sampling time. This LED is important when the sampling system is made by sampling pre-concentration..
"**stand by**" : Lighted LED when the GC is on power but not running. It waits to be started up.

Communication states with the PC

"**OK**" : lighted LED when the communication with the PC and the analyser is correct
"**warning**" : LED lights up to indicate that an error whom the code is between 100 and 200 occurs. (Example: if the GC is logged off from Vistachrom). This LED will not light while Vistachrom communicates with the analyzer (logged on).
"**error**" : Lighted LED when a big error has occurred. The files are not be saved any longer and a **RESET** will be probably necessary even if the communication is possible again after re - starting the PC.

G. THE DIFFERENT VISTACHROM ACCESS BUTTONS

G.1. AT THE START UP OF VISTACHROM

 : Validation of the user login and of its the password. Allows to launch the software with different access levels.

 : Allows to cancel the software start up.

 : Gives details concerning the Vistachrom software installation

G.2. AVAILABLE BUTTONS IN VISTACHROM

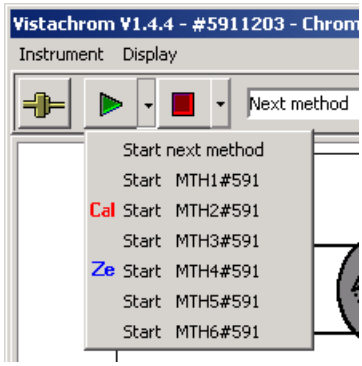
 : Allows communication between the software and the analyser when this one is powered on and the RS232 cable is connected between the serial port of the PC and the GC one.

 : Button allowing to see that the communication is active. By clicking on this button, the communication between the PC and the CG is interrupted immediately. If an acquisition is on the way, the data could be lost.

 : Active button when the communication between the GC and the PC is established and a sequence has already been loaded in the GC memory.
If the GC is in 'Wait' status (**stand by** and **OK LED** lighted), the sequence startup is immediate by clicking on this button. The **running** and **OK** LED light up even if the method does not start up at immediately. (Usually, the method starts up at the full minute).
This button can be inactive and therefore in grey tone when:

- The access level is in **free access** mode and without any password (For example after an unexpected PC re-startup)
- If the sequence and the working methods have not been downloaded into the chromatograph (for example after doing a RESET)

This button allows forcing the execution of any method belonging to this sequence during the start up or the sequence running. To do that you have to click on the arrow on the right side of the button, a menu appears. :



Click on the desired method name.

If the « **Cal** » symbol appears in front of the method name, this indicates that this method is a so-called « calibration method » that is going to be inserted into the next sampling cycle in the field « ***Sampling method*** ».

The symbol lack can be due to several possibilities:

- The calibration method name has not been configured in the system file of the instrument as a ***calibration*** method.
- The method has not been integrated into the GC working sequence file. ***Remark***: *its repetition factor can be equal to zero, even if we don't want the method to be automatically executed on a time basis*.
- The working sequence has not been loaded into the CPU card..

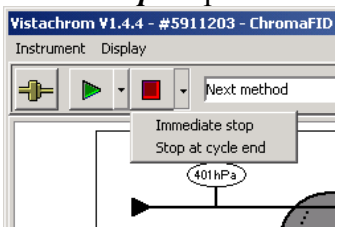
If the « **Ze** » symbol appears in front of the method name, this indicates that this method is a so-called « ***Zero*** » that is going to be inserted into the next sampling cycle in the field « ***Sampling method*** ».

The lack of this symbol can be due to several possibilities:

- The name of the zero method has not been configured in the system file of the instrument as a ***Zero*** method.
- The method has not been integrated into the GC working sequence file. ***Remark***: *its repetition factor can be equal to zero, even if we don't want the method to be automatically executed on a time basis*.
- The working sequence has not been loaded into the CPU card.

 : Instrument is currently running. The **running** and **OK** LED **are** lighted. The **sampling** LED can light as well when the instrument is sampling. This button allows stopping the currently running sequence, 10 seconds before the end of the current cycle. This way we got a correct stop of the analyzer. At the end of the method analysis, the **stand by and OK LED light**.

The sequence can be immediately stopped by clicking on the arrow on the right side of the button, then by selecting the « ***immediate stop*** » option of the displayed menu.

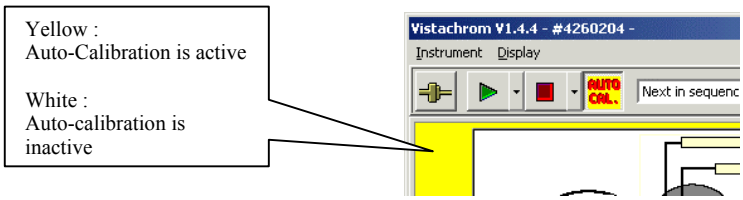


In this case where the **sampling** LED is lighted, you should stop the sampling manually by using the instrument synoptic control or by using the GC_Service program.
This button can be in grey tone and therefore is inactive if the access level is **free access** mode.

This button  in the tools bar allows activate/deactivate the auto calibration quickly.

You can only see the button under the following conditions:

- The instrument is fitted with a firmware « Chroma5.8 » version or a subsequent one.
- One of the substances of the loaded sequence into the instrument has been configured in an auto calibration mode.



The activate state of the auto-calibration is shown with the yellow frame of the instrument synoptic otherwise it is white.

The inactive state stops the update of the instrument « Base sensitivity »

This allows to perform maintenance operations without disturbing the « Base sensitivity » value.

 : Download of the working sequence in the analyser memory. This Button should be used when you restart the analyser after a RESET, or after modifying the working sequence, or one of the working method, or the substance table.

 : Allows to see the last GC configuration that is in the PC memory.
In the case when the software and the GC are communicationg, this button allows to display the system file contained in the GC memory.
In the case when the GC does not communicate with Vistachrom, the system file visible with this button can not be strictly identical to the system file contained in the GC memory. (Example: Readjustment of the sampling flow with the GC service program). In this case when the next communication is ordered, the PC will show that the GC and PC configurations are different. It will ask if the new configuration has been downloaded in the GC memory.

 : PRESET button. Used by field technicians during the service interventions. This button is not available for the user (grey tone).

 : Allows setting up the configuration of the acquisition software like:
Measurement units of the parameters instrument (hPa, bar, °C, etc.)
Method Manager and ***Viewer*** program paths.
File name format used during recording of the chromatogram data.
The unit of the **base sensitivity** (ng, mg/m^3, etc.) of the instrument as well as the unit of the result expressed in ppm, µg/m^3, etc.
The transfer of results to a driver
The selection of the files to be saved
Etc.

 : Allows to open the working sequences that are in the GC **program** directory.

Shortcut for the ***Method manager*** program.

With the ***Method manager*** and after selecting the working sequence of the GC, you have only to enter the password to modify the parameters in the sequence, in the method or in a substance table.
In order to download the sequence in the analyser you have to:

- Stop the analyser, reload the new sequence and restart the analyser.
- If the modification is to be done in the substance table, there is a possibility to click directly on its name in the synoptic. Do the necessary modification, save the new table with the same name. And as previously stop the analyser, load the sequence (to update the table in the GC memory) and restart the analyser.

 : This icon allows to directly open the ***Viewer program*** in order to view chromatograms or trends of measurements.

 : This icon displays the last integration report sent by the GC.

 : Selection of the communication port of the PC used to communicate with the RS232 card of the instrument. This button is in grey tone when the instrument is in communication with Vistachrom.

H. ACCESS TO THE FUNCTION BUTTONS FOLLOWING THE USER LEVEL AND THE PASSWORD.

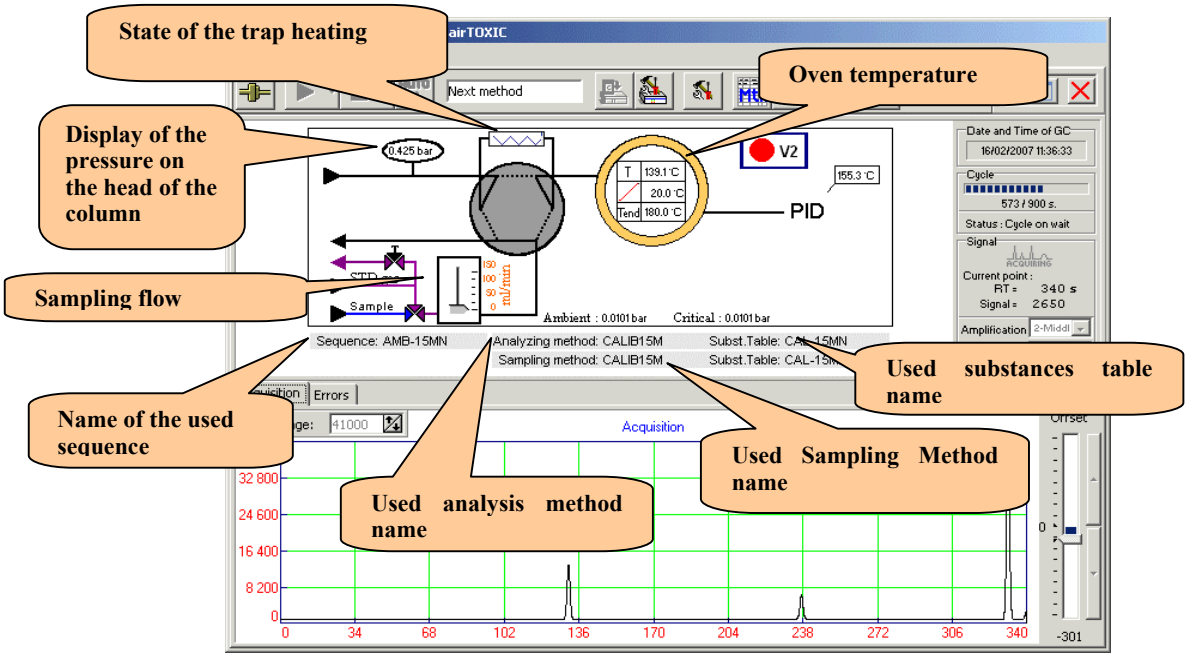
H.1. USER NAME: FREE ACCESS PASSWORD: NONE

In this configuration, no control can be done on the GC. The only possible actions are:

- The access to the visualization of the GC configuration
- The access to the Method Manager program
- The access to the Viewer program
- The display of the last integration report.

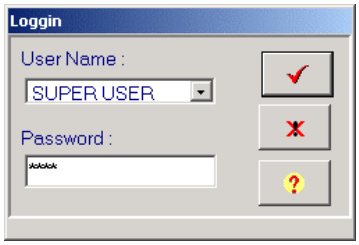
It is possible to have Vistachrom with this access level, especially after a power supply breakdown of the PC and the GC if they are not connected to a UPS. In this case when the power supply recovers, the PC and Vistachrom start up alone and Vistachrom is connected to the GC automatically in order recording the results. However, it is highly recommended to use an UPS for central unit of the computer and GC.

(***When the instrument is running and there is a power breakdown, the GC switches off suddenly and the electric piezo valve that regulates the carrier gas, closes at the same time. Whatever the oven temperature, the column will not been swept and will be damaged quicker and quicker. The PC electronic cards could also be damaged).***



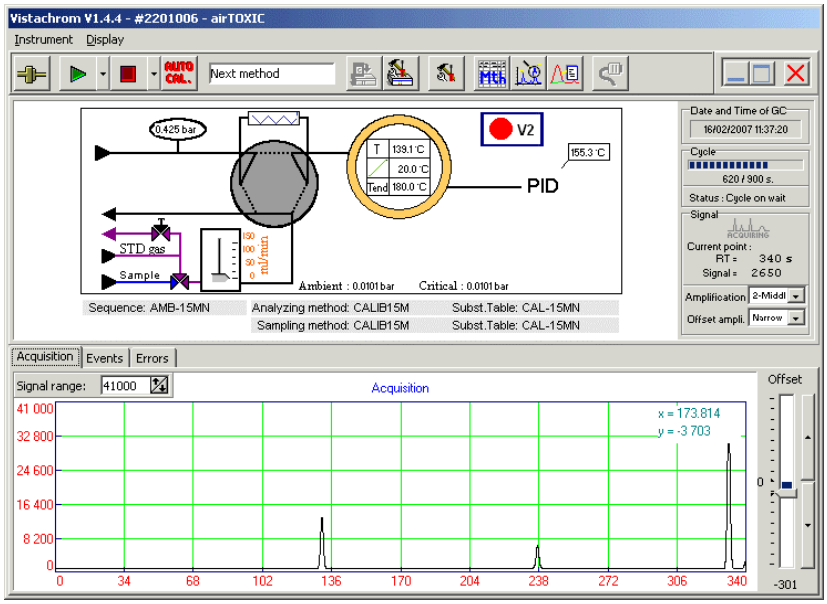
To regain control of the GC, you have to:

- Bring the Vistachrom window on the foreground
- Select the appropriate user and type the adequate password  ,



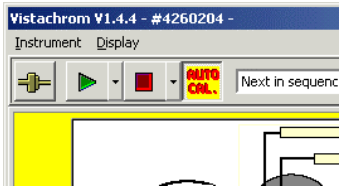
- Get back to the instrument window .

H.2. **USER NAME :** SUPER USER **PASSWORD :** ****



In this Vistachrom configuration, all the user useful buttons are available. In the rank:

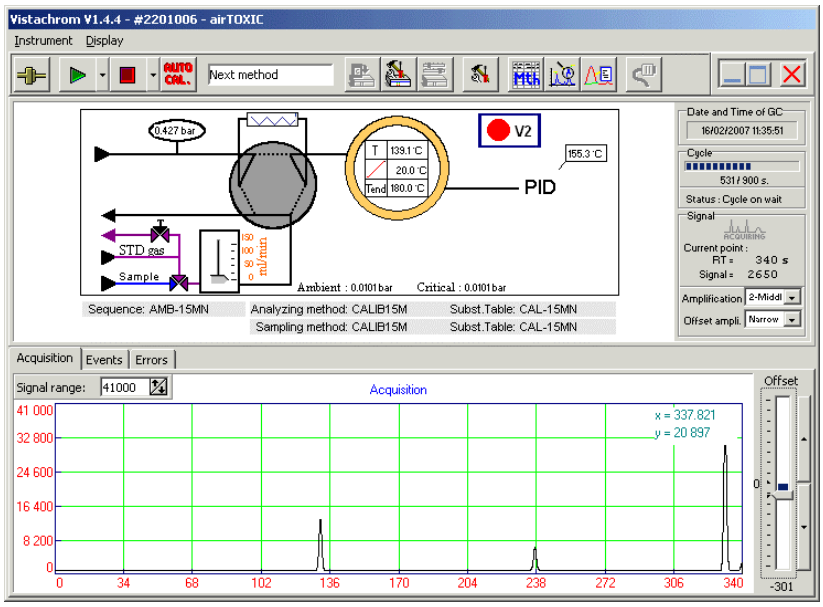
- Log on or Log off the GC with the PC.
- Stop or start up of the instrument following its status.
- Start up of a ***calibration method*** or of a ***ZERO method.*** In the case when the instrument is with a multiplexer, the user has nothing else to do. On the other hand, the user should plug the standard gas or the zero air on the sampling inlet manually before starting up a calibration method or a zero method.
- Stop the analyser at the end of the cycle in progress (***Analysing method***)
- Activation / deactivation of the auto-calibration. You can only see this button when the instrument configuration allows it (firmware GC Chroma 5.8 or the subsequent versions + auto-calibration method).



- If the instrument is in **stand by** status, reload the new existing working sequence (in the program directory of the instrument).
- Display the configuration of the instrument and possibly update the sensitivity factor of the GC. **CAUTION: The instrument must absolutely be in stand by to do it.**
- Display the configuration of the Vistachrom software (GC working unit, expression of the unit of the results, etc…).
- Shortcut to the ***Method manager*** program to see or to modify the methods contained in the GC program directory.
- Shortcut to the ***Viewer*** program to display the chromatograms, to reprocess, etc.

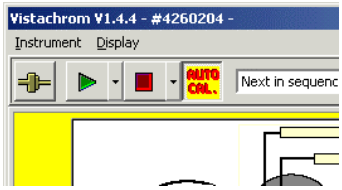
- Display the last integration report

H.3. USER NAME: FREE ACCESS PASSWORD: ****



With this configuration, all the buttons are available to the technicians in order to setup and to service the GC. This configuration is reserved to Chromatotec field engineer.

- Log on or log off the GC with the PC.
- Stop or start up of the instrument following its status.
- Start up of a ***calibration method*** *or of a* ***ZERO method.*** On the contrary, you have to connect the standard gas or the zero air on the sampling inlet before starting up a calibration method or a zero method.
- Stop the analyser at the end of the current cycle "***Analysing method".***
- Activation / deactivation of the auto-calibration. You can only see this button when the instrument configuration allows it (firmware GC Chroma 5.8 or the subsequent versions + auto-calibration method).



- If the instrument is in **stand by**, reload a new existing working sequence in the **program** directory of the instrument.
- Display the configuration instrument and possibly update the sensitivity of this latter.
  CAUTION: the instrument must be absolutely in stand by to do it.
- **PRESET** form of the different display parameters of the software.
- Display the Vistachrom software configuration. (GC working unit, expression of the unit of the results etc…)
- Shortcut to the ***Method manager*** program to see or to modify the contained methods in the GC program directory
- Shortcut to the ***Viewer*** program allowing *to display chromatograms, to reprocess, etc….*

- Display the last integration report

I. USE OF AN EXISTING CALIBRATION METHOD

To calibrate the GC, you have to:

- Connect a standard gas to the sampling inlet or to the multiplexer. This standard gas can come from a cylinder or from a permeation oven. The concentrations of different components of the standard gas must be perfectly known.
- Run a calibration.

The standard gas should be connected on the sampling inlet or on the multiplexer manually, allow few minutes purge time before starting up the new sampling method ***"Sampling Method"***.

When the calibration is activated, the analyser does not sample the standard gas at the same time because a sampling method is already been processed (***"Sampling Method"***).
But, when the next cycle will start up, the method that was previously in ***"Sampling Method"*** will be in analysis method "***Analysing Method"*** and the calibration method (ordered during the previous cycle) in sampling method "***Sampling Method"***. To see the acquisition, you have to wait for the following cycle so that the calibration method turns to the analysis method "***Analysing Method"***.

Note: that the analyser fitted with the Chroma 5.7 operating program version can be configured to perform the sampling and the analysing phase in the same cycle.

J. USE OF A EXISTING ZERO METHOD

As for the calibration, it is highly advised to control the quality of the zero air from time to time if this one is used for the dilution of the standard gas (for example when a permeation oven is used).

- To do it, we will use the “zero method”

The zero air is connected to the sampling inlet or to a multiplexer manually when the following sampling method "***Sampling method"*** *will start.*

K. CALIBRATION

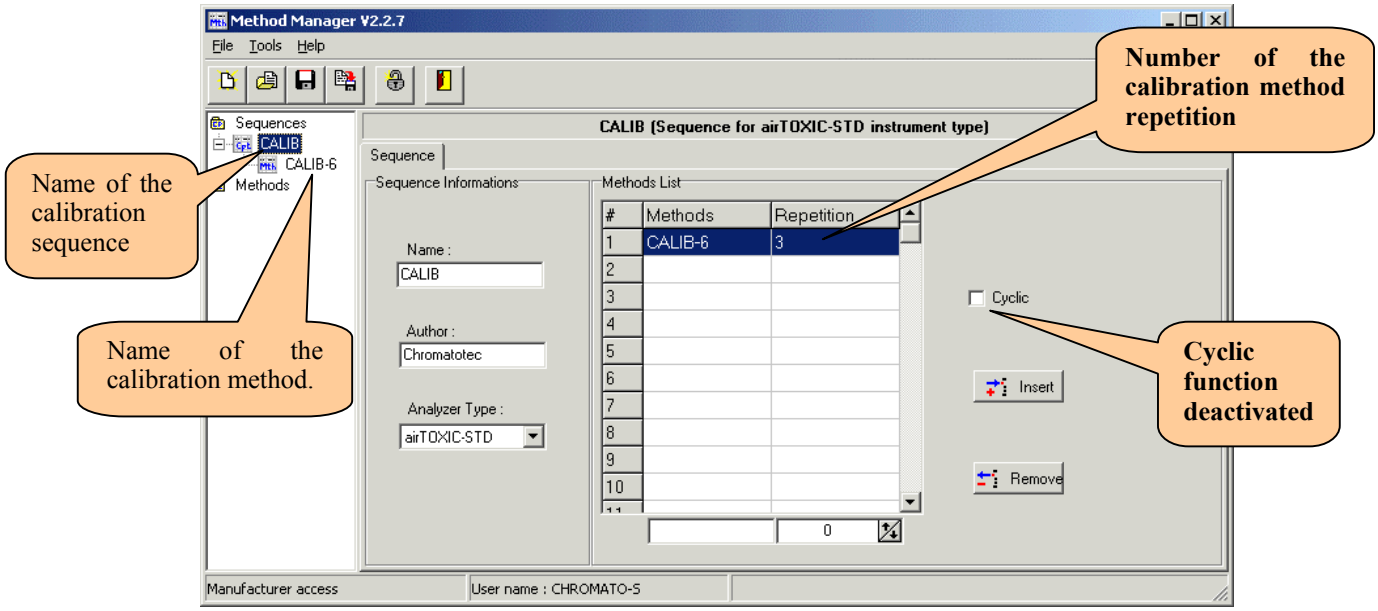
K.1. INTRODUCTION

The analyser can need to be recalibrated in order to compensate the intrinsic ageing of these components (traps, column…) or in order to fit to the environmental conditions.

Usually three checks or calibrations yearly are necessary.
The modification of the instrument sensitivity consists of changing the "**Base sensitivity**" parameter
To update the sensitivity value of the instrument, 3 minimum repeatable measurements on the standard gas must be performed..
The use of a sequence is recommended because you need to do at least 3 repeatable measurements. With a sequence, the standard gas sampling is done automatically and the user has not to stay next to the analyser to start up the sampling of each new cycle manually.

K.2. CALIBRATION START UP

Example of a calibration sequence : **Calib.cpt**



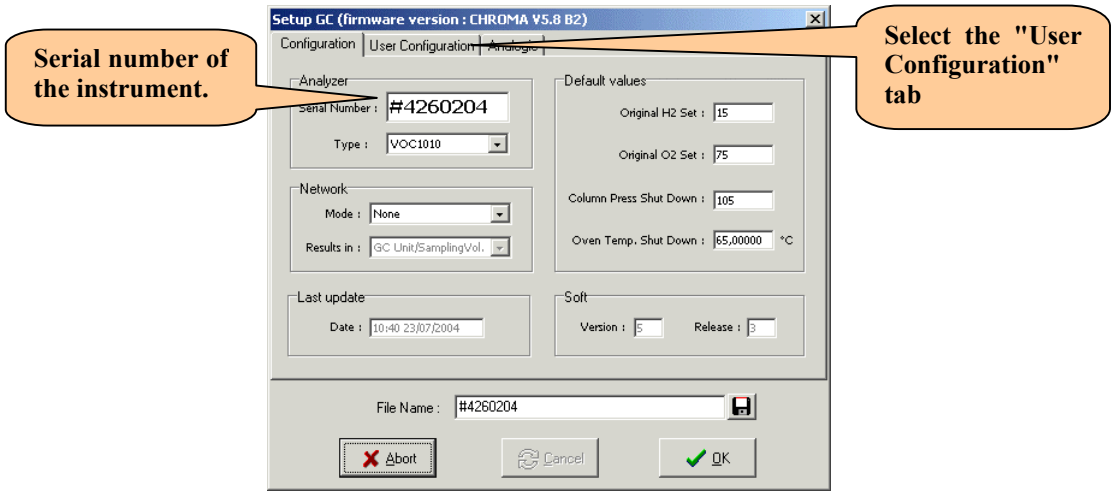
This sequence must be previously downloaded in the CPU card with the button  . Start up the new sequence with the button  . The **running** and **OK** LED light at the same time even if the acquisition does not start up immediately. Indeed a sampling cycle must be completed before starting the acquisition. On the next cycle we will have the analysis phase corresponding to the first sampling and the second sampling can begin, etc.
With this sequence the instrument will automatically be in Stand By mode when the three measures are completed since the "cycle function" is deactivated.
If the three measures are in agreement, the calculation of the new sensitivity factor can be done. If the results are not repeatable, the calibration sequence must be restarted up until you obtain the three measures in agreement.

The 3 calibrations can be started manually by selecting the method with the « **Cal** » symbol, into the button menu  . This operation must be done at each new cycle start. This way is very useful in case of **a quick check of the GC calibration**. But for a full calibrating it is advisable to use a sequence that do the samplings and analysis automatically. .

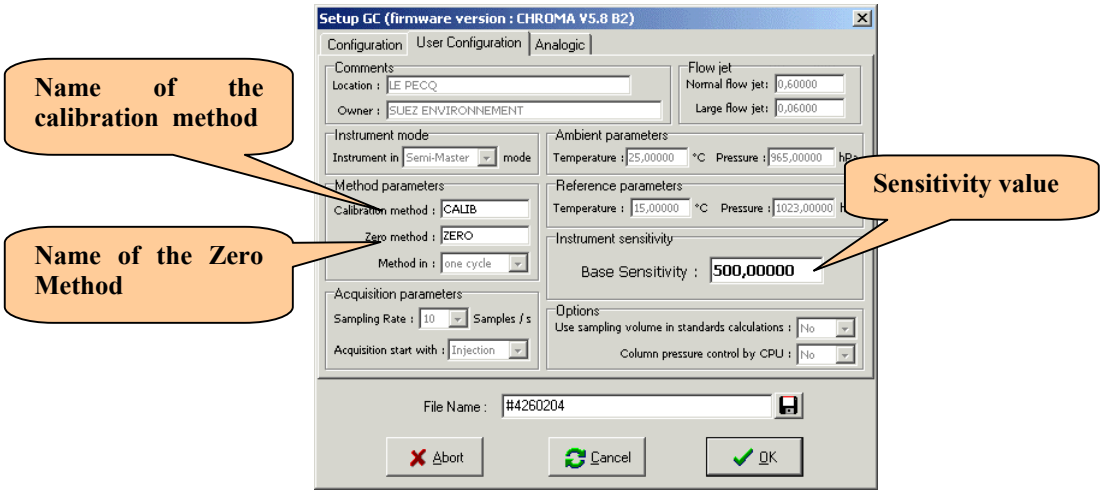
K.3. SENSITIVITY VALUE

The value of the current sensitivity (**B**ase **S**ensitivity)is located in the system file of the instrument. You can display it in the **Setup GC** menu by clicking on  .

The following window appears:



Select the **User Configuration** tab, the following window appears:



The only user edition allowed parameters in this tab are:

- The sensitivity value of the instrument (***Base Sensitivity***)
- The calibration method name input allowing to configurate. (***Calibration Method***)
- The zero method name input if necessary (***Zero Method***)

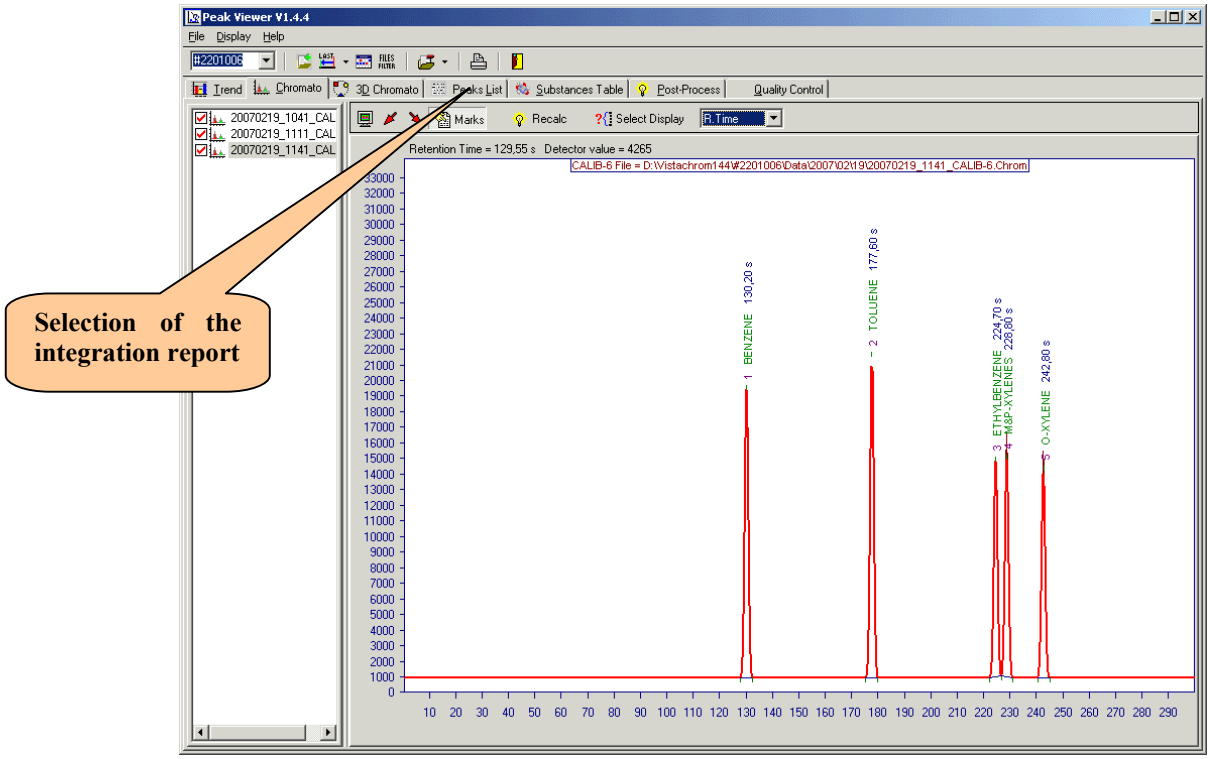
Note that the sensitivity factor has a dimension. **It is the ration of the surface by the mass or by the concentration.** That is to say:

- **ua / ng** for a chromatographical system with a pre-concentrator and measure of the sampled volume..
- **ua / mg.m^{-3}** for a chromatographic system with a sampling loop .

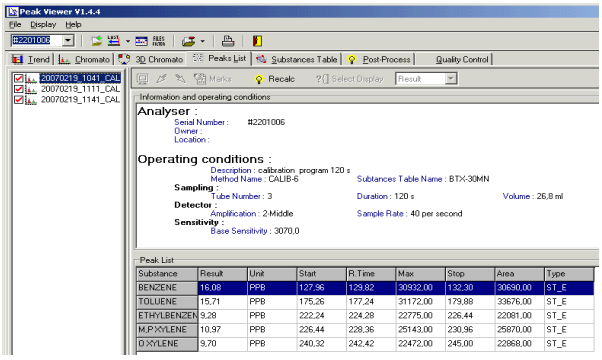
This factor is calculated in relation to the substance that will be used as reference. The adjustment of the other compounds will be done with the **factor** parameter that is in the substance table**.**

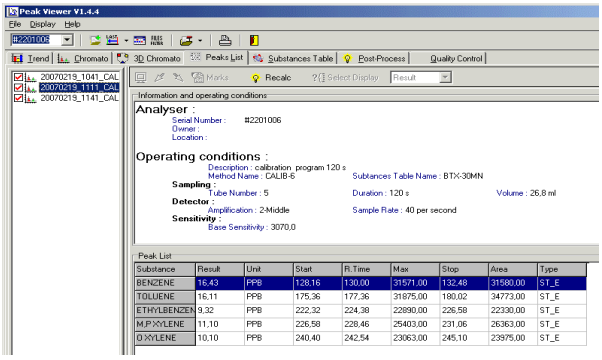
K.4. EXAMPLE OF AN INSTRUMENT CALIBRATION

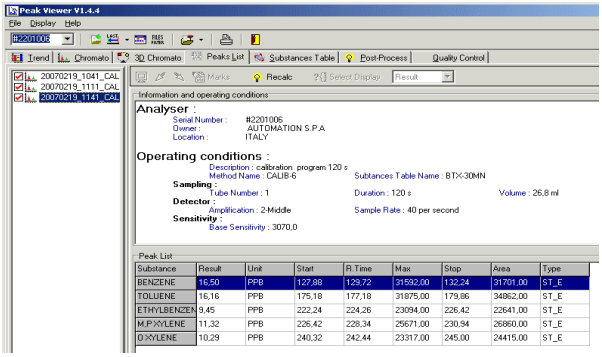
With the Viewer (button ), we will open the three chromatograms corresponding to the analysis of the standard gas and then to the integration reports. As result we get:



The user will select the integration reports concerning each of the chromatograms as follows:







To update the sensitivity value of the GC, use the following method :

1) Take down the sensitivity value currently used (ex : **Base sensitivity = 3070**).
2) Take down the concentration value of the reference standard(ex : **Benzene = 15,5 ppb** in the standard cylinder)
3) Calculate the average of the concentration values taken down on the 3 measures **in agreement.**
4) Apply the following formula:

$$\text{New sensitivity} = \frac{\textbf{Average of the displayed concentrations}}{\textbf{Standard concentration}} \times \text{Old Sensitivity}$$

Example:

$$\text{New sensitivity} = \frac{16{,}34 \text{ ppb}}{15{,}5 \text{ ppb}} \times 3070 = 1{,}054 \times 3070 = \mathbf{3236}$$

Average of the given concentrations by the chromatograph

	BENZENE
1° measure	16,50
2° measure	16,43
3° measure	16,08
Average (ppb)	**16,34**
Factor of the original sensitivity	**3070**
average * sensitivity value	50154
Real concentration (ppb)	**15,5**
New factor calculation	**3236**

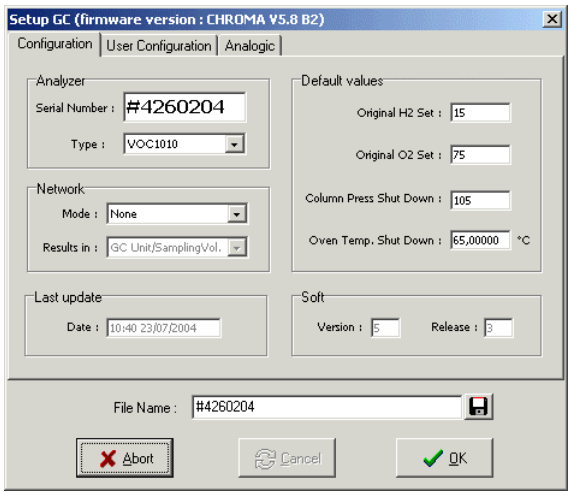
Intermediate calculation (area)

50154 / 15.5 = 3236

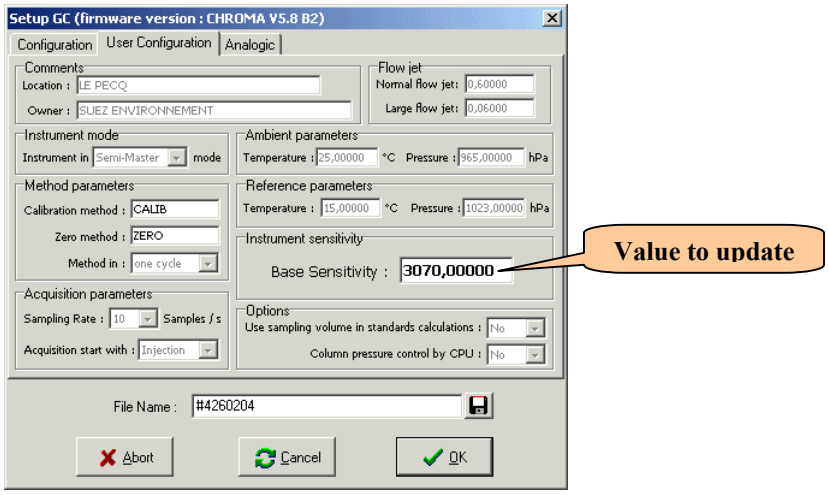
The new sensitivity value of the instrument will be: **3236**. This factor should be updated in the system file of the instrument. To do it, you have to :

1. Stop the analyser at the end of the current cycle with the button  .
2. When the **stand by** and **OK** LED are lighted, the analyser is waiting for and the modifications in the configuration are possible
3. Log off the instrument with the  button.
4. Open the (**SETUP GC**) configuration file of the GC with the button  .

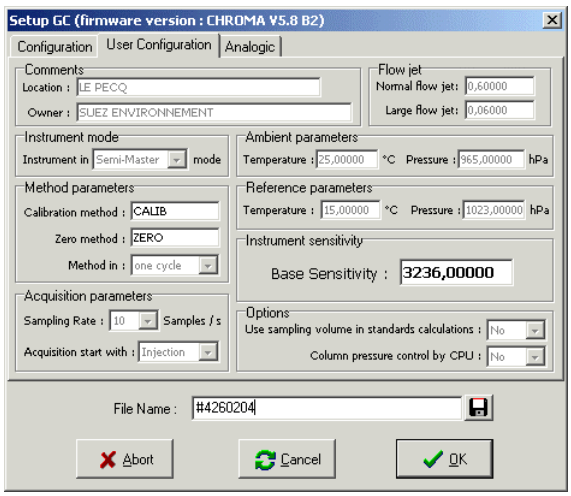
5. The following window opens :



6. Select the User Configuration tab, the following window appears :



7. Value to update

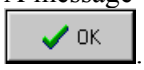


To validate and save the value, you need to click on 

. For cancelling the operation, click on 

.

To load the new factor in the CPU card of the GC, you need to log on the GC to Vistachrom with the button 
.

A message will appear indicating that the configuration has changed. Validate by clicking on the icon 

.

Vistachrom will ask to the user if the new configuration must be downloaded in the analyser.
Validate this new configuration by clicking on YES.

Vistachrom will then ask to the user if he wants to edit this new configuration. It is a way to check that the sensitivity factor has been correctly entered. But the issue of the new configuration is not essential for the download of the new parameters. If the user wishes to check up the GC configuration, click on **YES** if not click on **NO.**

Before restarting the GC with the button 
, **the user should reload the usual working sequence with** 
, then start the measure. The **running** and **OK** LED light up immediately

If the GC is configured in Two cycle mode, the first cycle will not have any acquisition since a complete sampling method must be done first before having an analysis method.

K.5. AUTO-CALIBRATION

K.5.1. CONFIGURATION

The instruments equipped with a firmware, « Chroma 5.8 » version or a subsequent one can be configured for the auto calibration. That means that they are going to be able to adjust their base sensitivity automatically in relation to the obtained results by measuring a standard (substance the concentration of which is known) This configuration is done at the substance table level associated to the method doing the measure of this standard.
The substance that will be used for the auto calibration must be written down on **the first line** of the substance table. If this substance belongs to the substances to be measured, then you need at least two substance tables, one for the calibration (associated to the calibration method), and the other for the measures (associated to the measure method or methods)

For indicating to the instrument that the substance will be used for the auto calibration, you have to write down the letter « **C** » in the « **standard** » column and the value **3** or **4** in the « **fitmode** » column.

Note: The surface used for the calculations will be the best centred peak surface in the capture window.

For this substance, the instrument calculates the result on this way

Sensitivity = PeakArea / factor

If the « **Use sampling volume in standards calculations** » option into the « **User Configuration** » tab of the « **Setup GC** » is active, it calculates the following

Sensitivity = Sensitivity / SamplingVolume

That means that **Sensitivity** is equal to:

Sensitivity = PeakArea / (factor * SamplingVolume)

This result is considered as **sensitivity f**or the instrument and for this measurement

Note : The **SamplingVolume** parameter is expressed in **ml** and cannot be modified

« **fitmode** » = **3**: It calculates a moving average on the last results.

If this average is between « **Alarm Min** » and « **Alarm Max** », this value is affected to the "base sensitivity" of the instrument. On the contrary it maintains the old base sensibility value, activates the GC alarm and issues an error code 143.

« **fitmode** » = **4**: It calculates the same operations as it did for « **fitmode** » = **3**, but provided that individual sensitivity are also between « **Alarm Min** » and « **Alarm Max** ». On the contrary, it maintains the old base sensitivity, activates the GC alarm and issues an error code 142.

MOST IMPORTANT PARAMETER FUNCTIONS :

- **RtMin** and **RtMax** : Define the peak capture window (as usual)
- **Alarm Min and Alarm Max** : Define the sensitivity variation range you allow. Be careful when setting this parameter. If the range is set two narrow, this could lead to inopportune error, and if it is set to large, a real analyzer failure could not be warn. This value are absolute and may not be symmetrical around the current value of the "base sensitivity"
- **Factor** : Must be equal to the substance concentration (or to the mass) so that the result shows the GC sensitivity (Pay attention to the concentration unit when the sampling volume has an effect on the sensitivity calculation)
- **NofM :** Indicates the number X of individual sensitivity measurement used for calculating the rolling average The analyzer use the LAST X usable sensitivity and the computation occurs at the end of every (calibration) acquisition to be used on the next cycle. Be careful when fitmode = 4 and some sensitivity has been out of the range AlarmMin AlarmMax, the average computation could use some old sensitivity.

L. EXAMPLE OF A SUBSTANCE TABLE WITH AUTO CALIBRATION

Name	RtMin	RtMax	AlarmMin	AlarmMax	Factor	Def	shift	standard	fitmode	NofM
Benzene	128	133	7000	13000	4	0	0	C	3	4

- The auto calibration is done for the benzène,because standard=C and fitmode=3
- The sensitivity can be between 7000 and 13000.
- The standard concentration being 4 mg/m3 and the GC being calibrated in mg/m3, the « factor » parameter is equal to :

  Factor = 4.0
- The rolling average of the sensitivity is calculated on 4 individual sensitivities (NofM = 4).

M. INITIALIZATION OF THE SENSITIVITY TO A PREDETERMINED VALUE

To initialize the sensitivity rolling average to a predetermined value, it is necessary to :

- **Modify the base sensitivity in the GC setup**. When the setup is transferred to the GC, the « base sensitivity » of the « setup » is copied in the « base sensitivity » H8 variable.
- **Then reload the sequence** . When the substance table is transferred and only at this moment, the H8 initialized the rolling average of the standard with the current value of the « base sensitivity ».

It is also possible to do several calibration measurements the number of which is larger than the number of the measurements used for the calculation of the rolling average.

Attention : modifying the « base sensitivity » of « setup » without reloading the sequence will only trigger a temporary modification of the « base sensitivity » variable of the H8.
Indeed the moving average has not been modified because there hasn't had any substance table transfer. Indeed the next calibration will trigger the overwrite of the « base sensitivity » variable of the H8 by the moving average value.

N. SEQUENCE EXAMPLE

1. You want to recalibrate the GC once per every 24h automatically.
2. The sensitivity calculation will be done on 4 measures running.
3. You are not sure of the accuracy of the first calibration, 5 calibrations will be done at the same time and you configure the moving average on 4 values (NofM = 4).
4. The starting sensitivity is set to 12000, 7000 to 13 000 is taken as a variation range for the « base sensitivity ».
5. The concentration of the calibration substance (here the benzene) is 4 mg/m3

The cycle time being 900 s, you get the following sequence:

#	Methods	Repetition
1	AUTOCAL	5
2	MEASURE	91

3		

Tableau 1 : Exemple of séquence

Substance table associated to the AUTOCAL method

Name	RtMin	RtMax	AlarmMin	AlarmMax	Factor	Def	shift	standard	fitmode	NofM
Benzene	128	133	7000	13000	4	0	0	C	3	4

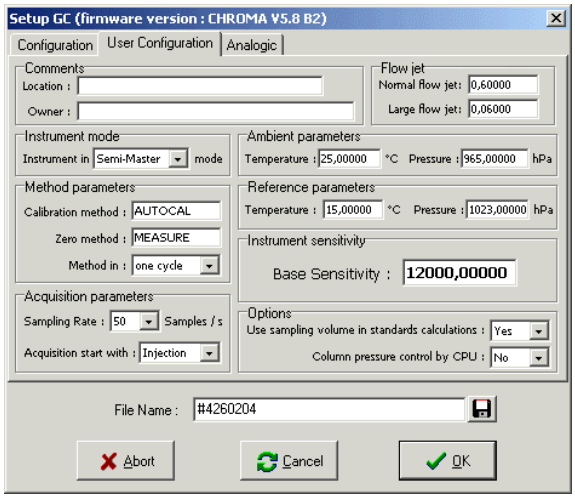
Tableau 2 : Exemple of substance table for calibration

Substance table associated to the MEASURE method

Name	RtMin	RtMax	AlarmMin	AlarmMax	Factor	Def	shift	standard	fitmode	NofM
Benzene	128	133	0	10000	1	0	0	0	2	1
Toluene	181	186	0	10000	1.04	0	0	0	2	1
ETHYLBENZENE	233	238	0	10000	1.12	0	0	0	0	1
…										

Tableau 3 : Exemple of substance table for measurement

User Configuration tab in the Setup GC window:



The base sensitivity is initialised at 12000

The parameter « Use sampling volume in standards calculations » = yes

This instrument being equipped with a trap, it is authorized to use the sample volume in the sensitivity calculation in relation to the standard.