

Operating Instructions

METTLER TOLEDO




Calibry Software for Pipette Calibration



METTLER TOLEDO

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1 Introduction

This chapter gives you basic information about the **Calibry** software. Please read through this chapter carefully even if you already have experience with similar applications and pipette calibration systems.

Important note: Please make sure to back up the database **before** updating the Calibry software (see chapter 2.7). Under normal conditions, a software upgrade will leave your database untouched. However, any installation procedure involves a certain risk of failure that may cause the database to be damaged or erased!

1.1 Short description of Calibry

Thank you for choosing the Calibry software from METTLER TOLEDO.

Calibry is an application for calibrating pipettes and other dispensing systems for liquids in the range from 0.1 µl to 100 ml. The application supports a large number of weighing systems from METTLER TOLEDO. Provided that enough hardware ports are available, multiple weighing systems can be connected to Calibry. Calibry is optimized for operation with the MCP multi-channel pipette calibration systems and the XP26PC balance from METTLER TOLEDO and supports the special characteristics of these systems.

Calibry runs under Microsoft Windows® (from Windows 2000) and provides a convenient user interface for intuitive and efficient working. Together with a network licence the application is networkable, and up to 5 PCs on which Calibry runs can access a common database (for network operation a SQL database is recommended).

1.2 Important information about these instructions

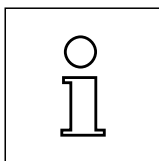
The following conventions apply throughout these operating instructions:

In these operating instructions, pipette calibration systems (e.g. a system comprises from 1 up to 5 MCPs) are always referred to as "**balances**" because this designation is also used in the software itself.

Key designations are enclosed in double angle brackets (e.g. «**ESC**» or «**Return**»).



This symbol indicates safety instructions and hazard warnings. Failure to observe such instructions and warnings can cause malfunctioning of the software or of the entire measuring system, and in the worst case can even damage system components.

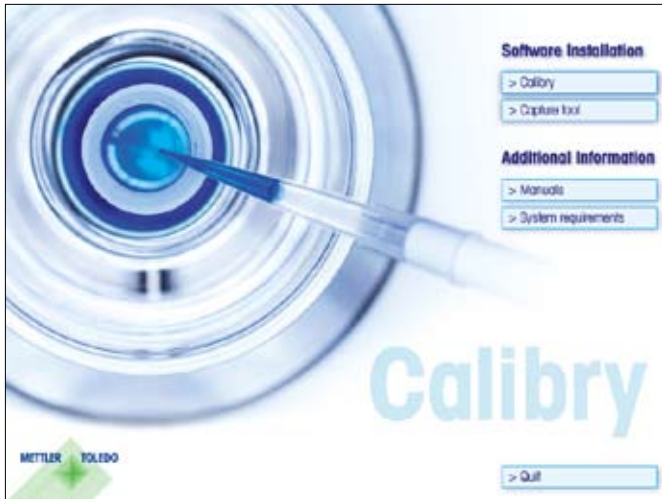


This symbol indicates additional information and instructions. Observing such instructions makes it easier for you to work with the Calibry software and helps to ensure correct and economical use of the software.

These instructions only describe the Calibry software. You must also observe the operating and installation instructions for the balances you want to operate with Calibry.

2 Installing the Software and launching Calibry

This chapter gives you information about the system requirements, installation, and registration of the Calibry software. In addition, you will find some information on data backup and the software upgrade procedure.



Calibry is supplied on a **CD-ROM**. Close all running applications on your PC before inserting the CD-ROM into the CD drive of your PC.

If the startup screen does not load automatically after having inserted the CD-ROM, double-click the "**install.exe**" file on the CD-ROM.

From within the **startup screen** you may install Calibry and the optional CaptureTool. Furthermore, you may view the current manual (assuming Adobe Acrobat Reader® is installed on your PC), and you may inquire information about Calibry's system requirements.

2.1 System requirements

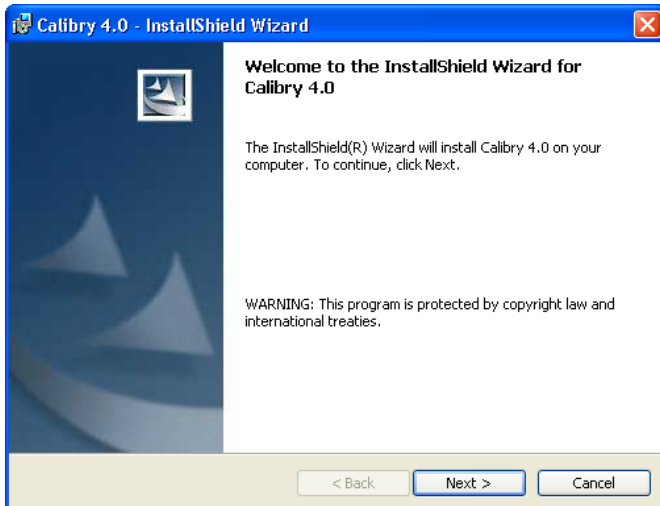


In the startup screen click on the "**System requirements**" button.

Before installing Calibry make sure your system meets the displayed requirements.

2.2 Installing Calibry

The procedure described below applies to a single workstation licence. In case of a network licence, first install Calibry on every workstation on the network as described below, then configure the system for network operation as described in chapter 2.4.

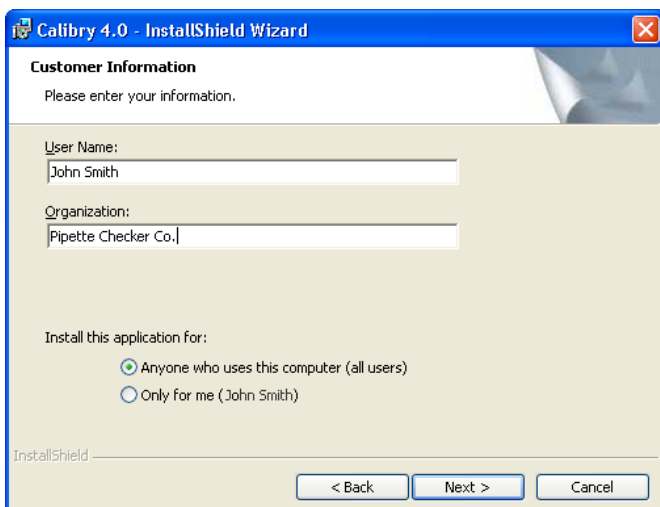


In the startup screen click on the **“Calibry”** button to install the application.

The Installer displays the welcome screen. Click on **“Next”** to continue the installation.



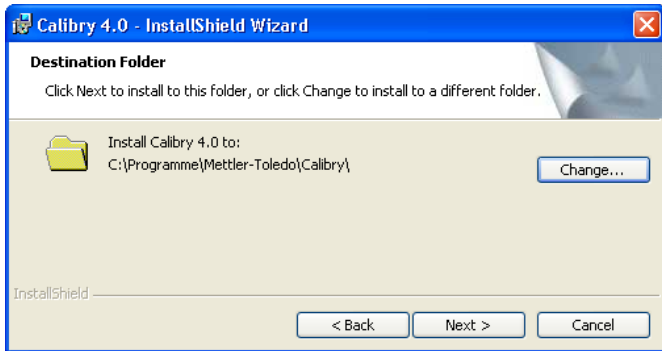
Carefully read the licence agreement. If you agree with the terms check the **“I accept the terms in the license agreement”** radio button, then click on **“Next”** to continue with the installation.



Enter your **user name** and **organization**. The installer suggests the same user name that was selected when installing Windows.

In the lower part of the window you may select the users for whom you wish to install the software (either all users or just the user who carries out the installation).

Click on **“Next”** to continue with the installation.

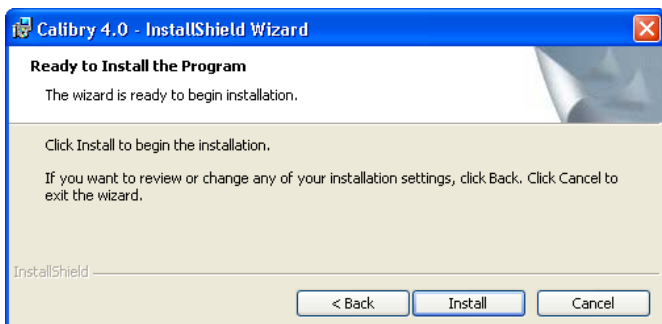


The Installer prompts to install the Calibry files in the standard Windows program directory (“%programfiles%\Mettler-Toledo\Calibry”).

If you wish to install Calibry in a different location, click on “Change” and select the desired directory.

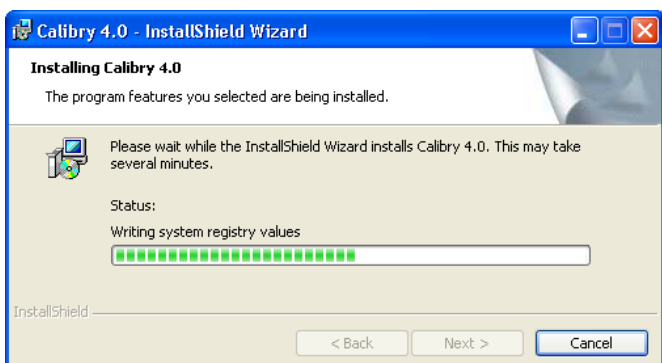
Note: Some files are automatically installed in the directory “C:\Documents and Settings\All Users\Application Data\Mettler-Toledo\Calibry\” (Windows Vista: “C:\ProgramData\Mettler-Toledo\Calibry\”). Usually, these directories are hidden and therefore invisible.

Click on “**Next**” to continue with the installation.



The Installer is now ready to copy the Calibry files into the selected directory on your PC.

Click on “**Install**” to start the copying procedure.



Wait until the Installer has copied all required files.



The Installer now confirms successful completion of the installation.

Click on “**Finish**” to quit the Installer. Depending on the operating system being used, it may be necessary to restart your computer.

Note: Upon installation, the Installer creates a shortcut to Calibry on the desktop (“Calibry 4.0”).

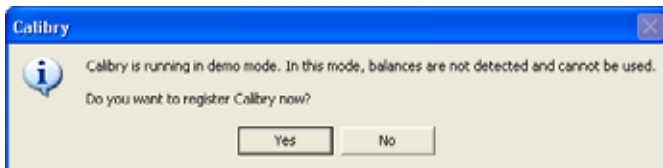
When the installation is complete, Calibry can be started and registered as described in chapter 2.3.

2.3 Starting and registering the application



Double-click on the shortcut icon "Calibry 4.0" on the Windows desktop to launch Calibry (you may also select Calibry from the Windows program list or double-click on the program icon in the directory where you decided to install Calibry).

Note: After having launched the application, Calibry possibly may display a message stating that the database version is invalid. In this case you will have to update the database as described in chapter 2.8.



The first time Calibry is started, the window at left appears asking you whether you wish to register Calibry now:

No: Opens the unregistered application in Demo Mode. In Demo Mode Calibry is fully functional but connected balances are not activated. Instead, you can simulate measurement values. Instructions for Demo Mode are contained in chapter 14.

Until the program is registered, the window with the two buttons shown at left appears every time the program is started.

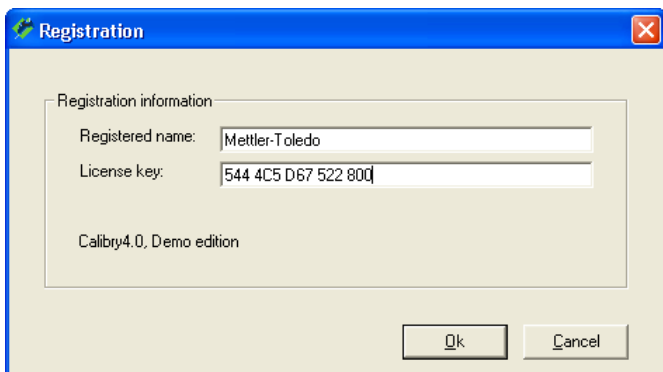
Yes: Opens the dialog described below to register Calibry.

Registering Calibry requires a **licence key** that must be obtained from METTLER TOLEDO: Complete the registration form found on the Calibry CD-ROM and transmit it by e-mail to METTLER TOLEDO who will then send the licence key to your e-mail address.

After you received the licence key from METTLER TOLEDO, enter the registered name and licence key in the registration dialog of the software. **Important:** The name and licence key are interlinked. A typing error can make it impossible to register the software. Please take care with spelling and uppercase/lowercase. Then click on "OK". A message confirms the correct input and Calibry is then registered. In case of a **network licence** you receive just one licence key. **Register Calibry on all workstations using the same name and licence key!**

Once Calibry is registered the message shown above will no longer be displayed when the program is started.

Note: When the application has been started, the registration dialog is also accessible from the "Help/Registration" menu.

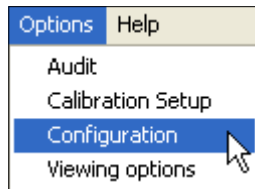


2.4 Configuring Calibry for network operation

You do not need to read this chapter if you just have a single workstation licence for Calibry.

After having installed and registered Calibry on all appropriate workstations of the network (chapters 2.2 and 2.3) proceed as follows:

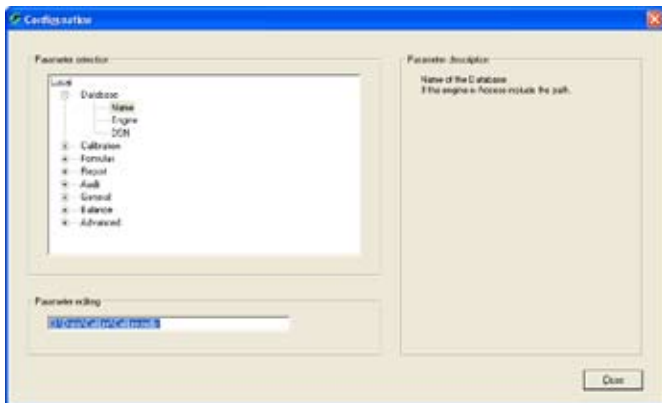
Select a shared volume on your network where you wish to install the Calibry master database. Copy the Calibry database ("Calibry.mdb") from any of the workstations to the select shared volume. **Note:** The "Calibry.mdb" database is found in the directory "**C:\Documents and Settings\All Users\Application Data\Mettler-Toledo\Calibry**" (Windows Vista: "**C:\ProgramData\Mettler-Toledo\Calibry**").



You now need to tell Calibry on every workstation where to look for the master database:

Launch Calibry on a workstation.

Select the "**Options/Configuration**" menu.



Select the "**Database**" item, then click on "**Name**".

Enter the **network path** to the Calibry master database (for example, "O:\Data\Calibry\Calibry.mdb").

Confirm with "Close". Calibry now asks you to restart the application. Click on "OK" to restart Calibry.

Launch Calibry on all remaining workstations and enter the network path to the master database, as described above.

Notes

- Upon installation of Calibry, the installer creates a "Calibry.mdb" database on every workstation. This database is located in the directory "C:\Documents and Settings\All Users\Application Data\Mettler-Toledo\Calibry\". After having set up the network path to the master database, the local databases are not required anymore.
- After having set up the network path, it is strongly recommended to check whether all workstations can properly access the master database.
- Make sure to back up the master database on a regular schedule (also see chapter 2.7).
- For a **SQL-based installation** please consult the next chapter.

2.5 Notes on installing Calibry in a SQL environment

Before installing Calibry in a SQL environment make sure to meet the system requirements, including the specifications relating to the SQL Server environment (see chapter 2.1).

For the following instructions it is assumed that SQL Server 2000 or later is already installed, including the latest Service Pack (SQL Server Express Edition is not supported). Furthermore, it is assumed that Calibry is already installed on all client PCs. Only databases working with Calibry 3.1 or Calibry 4.0 can be imported into the SQL database. If your database is working with an older version of Calibry, first run the "DBUpdate" application installed with Calibry. This will update your database to version 4.0.

Subsequently, the following steps have to be carried out:

- Setting up the SQL database
- Establishing the user accounts on the SQL server for network access
- Configuring the ODBC connection (must be accomplished on every PC running Calibry).

2.5.1 Setting up the Calibry SQL database



Log on to Windows with sufficient rights to access the SQL Server as an administrator.

Start the "SQL Server Management Studio".

Connect to SQL Server:

In the "Server name" field enter the name of the SQL server you wish to connect to, then click on the "Connect" button.

Create the database for Calibry:

Right mouse click on "Database" → "New Database", then enter the name of the new Calibry database (Example: "Calibry"). Set up the storage space for the data and log files (example: 1000 MB for the data file, 10 MB for the log file). Finally, confirm with "OK".

Import the Calibry Microsoft Access® database ("Calibry.mdb"):

Right mouse click on the database created in the previous step. From the context menu select "Tasks → Import data" (this starts the SQL Server Import and Export Wizard).

Click on "Next".



Choose "Microsoft Access" as the data source, then enter the path to the Access database to be imported.

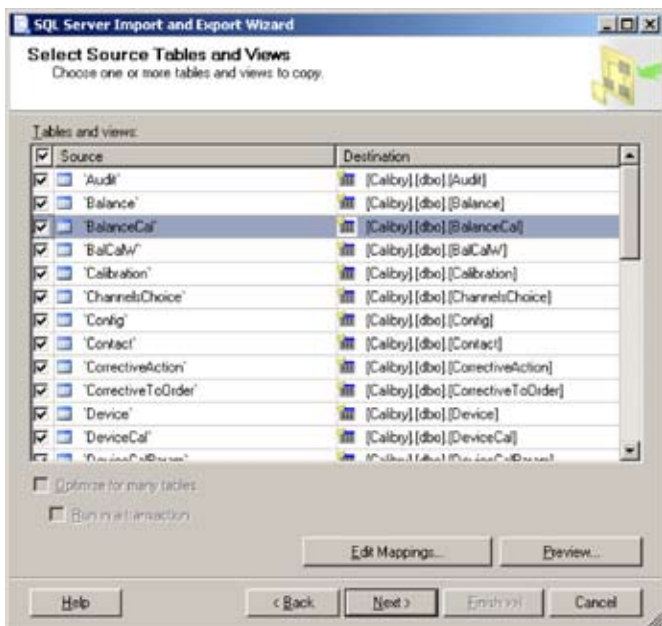
Click on "Next".



Choose a destination and the SQL Server name and click on "Next".

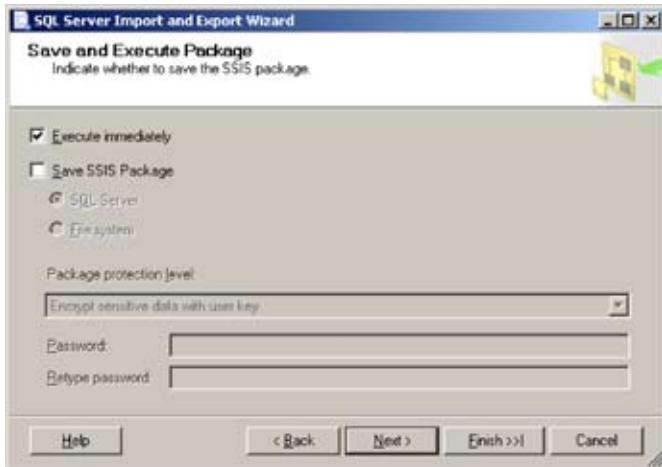
In the "Specify Table Copy or Query" window select "Copy data from one or more tables or views".

Click on "Next".



Check the boxes of all tables.

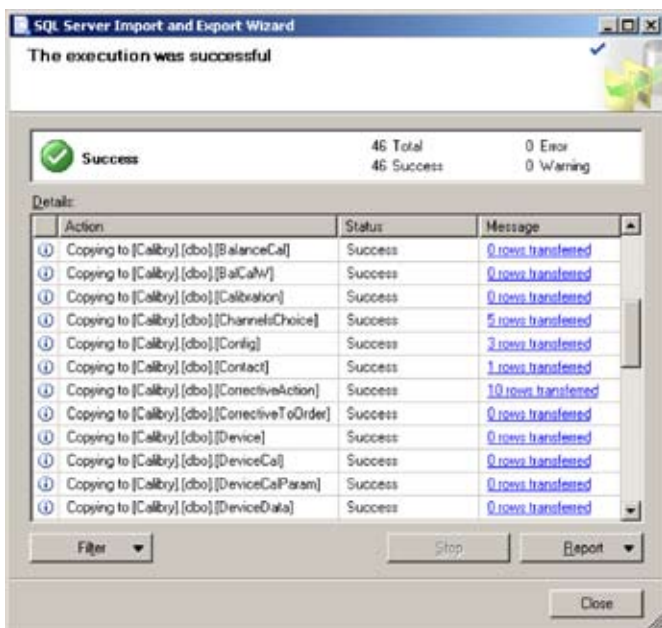
Click on "Next".



In the "Save and Execute Package" window select "Execute immediately".

Click on "Next" and then click on "Finish".

The database structure and the data are being imported.



Make sure the import of the database was successful.

Click on "Close".

Run the SQL script found on the Calibry CD-ROM:

- If the database you imported is in Calibry 3.1 format, run the SQL script "**Script Calibry 3.1.sql**" (for users currently working with Calibry 3.1).
- If the database is in Calibry 4.0 format, run the SQL script "**Script Calibry 4.0.sql**" (for new users or for users who already updated the database to Calibry 4.0 with the "DBUpdate" application).

2.5.2 Creating a user account on SQL Server accessible from the network

Important: A particular user account must be created for every Calibry user or user group, respectively.

Connect to the "SQL Server Management Studio".

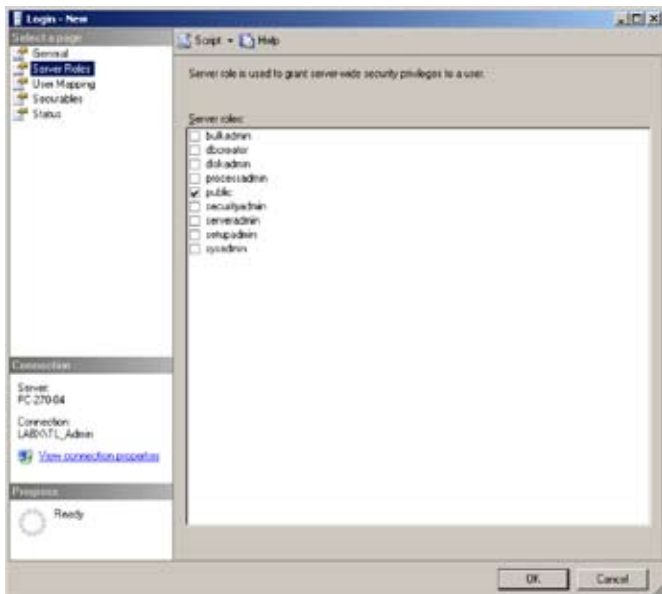
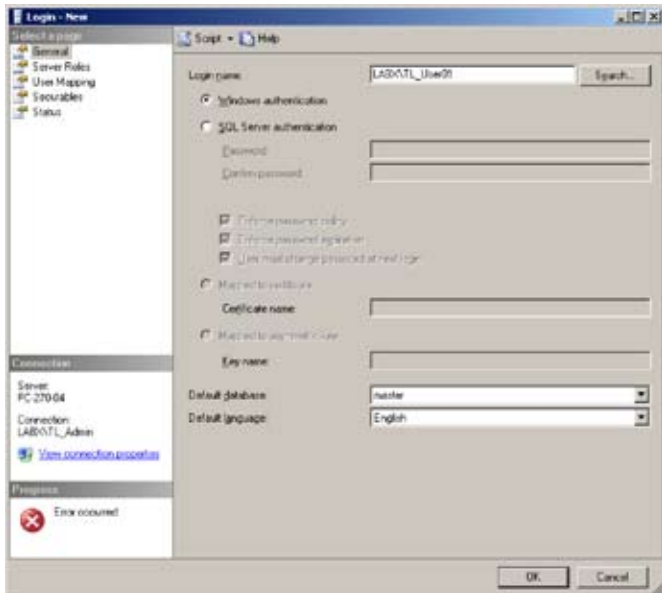
Right click on Logins (Security → Logins) → New Login.

Create a new login:

Enter the Login name (domain name\user name).

Select the default language.

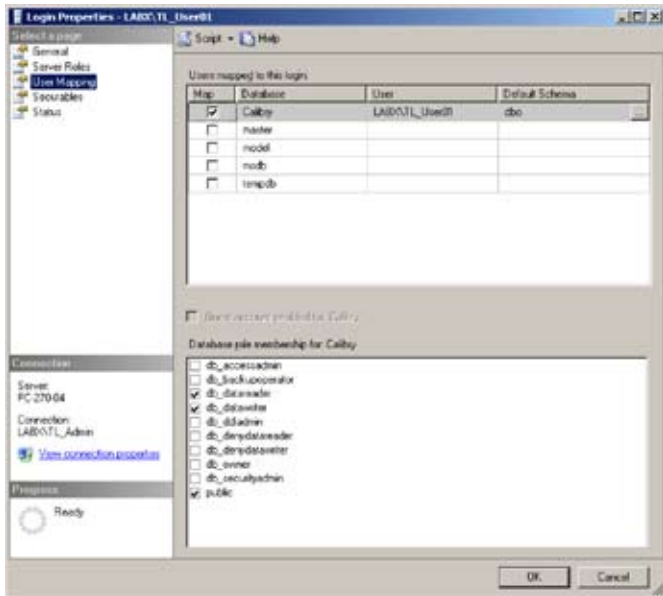
Confirm with "OK".



In the "Select a page" column of the window click on "Server Roles".

Check "Public".

Confirm with "OK".

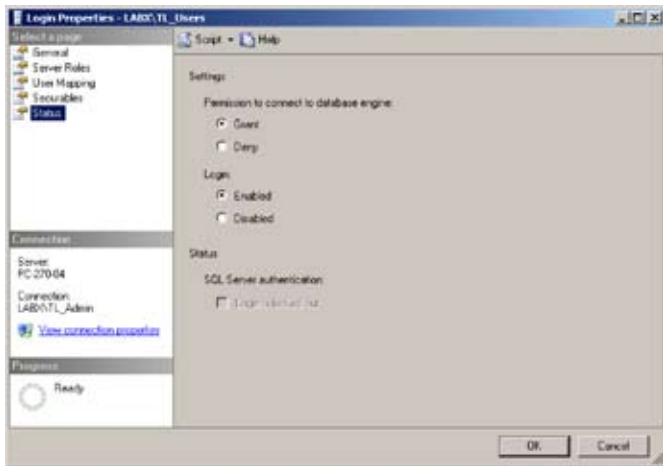


User Mapping

In the "Select a page" column of the window click on "User Mapping".

From "Users mapped to this login" select the Calibry database.

In the "Database role membership for Calibry" section check "db_datareader" and "db_datawriter" (Calibry denotes the name of your Calibry database).



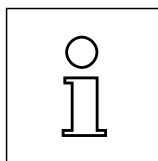
Status

In the "Select a page" column of the window click on "Status".

"Grant" permission to connect to the database engine.

For "Login" check "Enabled".

Confirm with "OK".

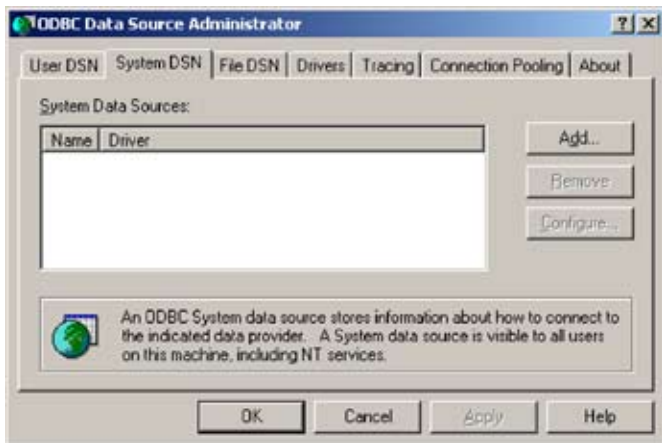


Important: Make sure the firewall of the computer running SQL Server is set up correctly so that the users can access their accounts and the database!

2.5.3 Configuring the ODBC connection

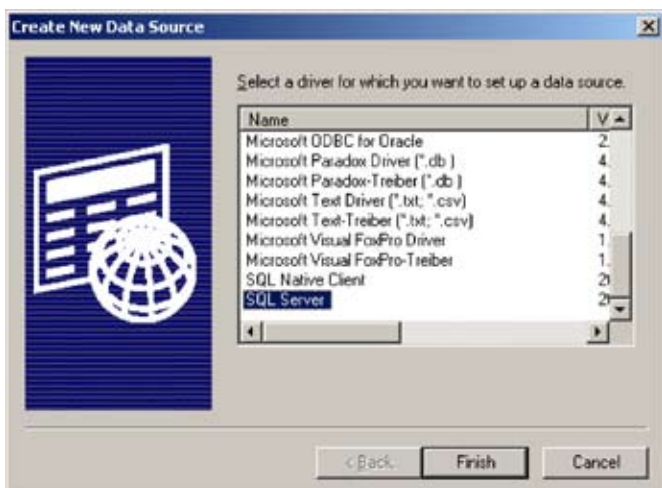
The following steps require administrator access and must be carried out on each client computer. **Note for Windows 2000 users:** The following steps require the "MDAC 2.8" application to be installed (available from Microsoft).

Go to the Windows control panel, open the "Admintools", then open the "Data sources (ODBC)".

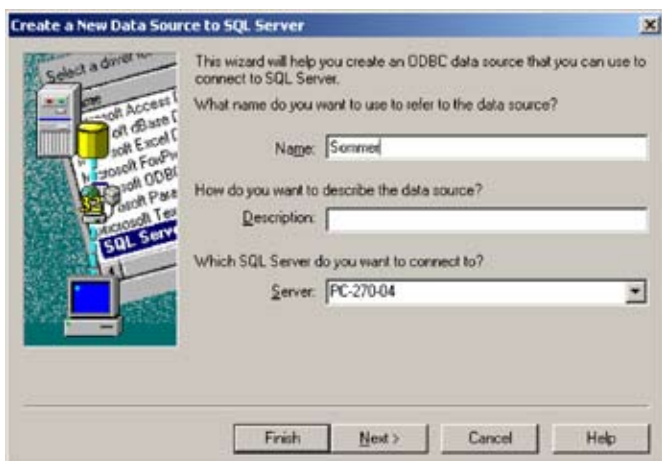


Create a new data source:

Select "System DSN" and click on "Add".



Select "SQL Server" and click "Finish"

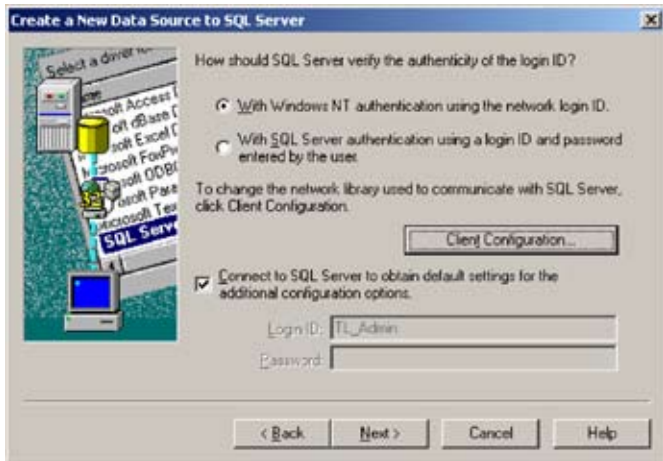


Create a new data source to SQL Server

Enter a name that refers to the data source (the name can be chosen freely, it has to be entered in Calibry afterwards, see below).

From the dropdown menu select the SQL Server you wish to connect to (or enter the name manually if the server does not show up in the list). The description is optional and is not required by Calibry.

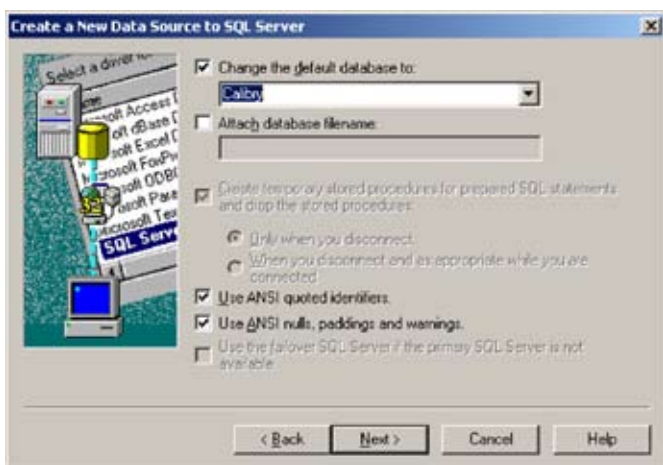
Click on "Next".



Check "With Windows NT authentication using the network login ID".

Check the box "Connect to SQL Server to obtain default settings for the additional configuration options".

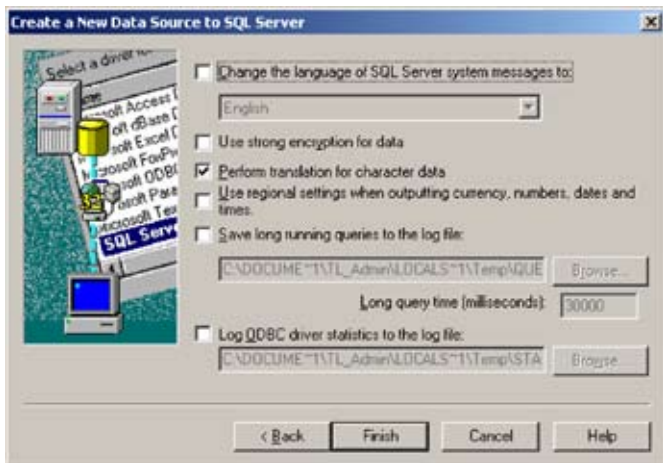
Click on "Next".



Check "Change the default database to:" and from the dropdown menu select the Calibry database.

Note: The database name must be entered in Calibry (see below).

Click on "Next".



Check "Perform translation for character data". Leave the other options unchecked.

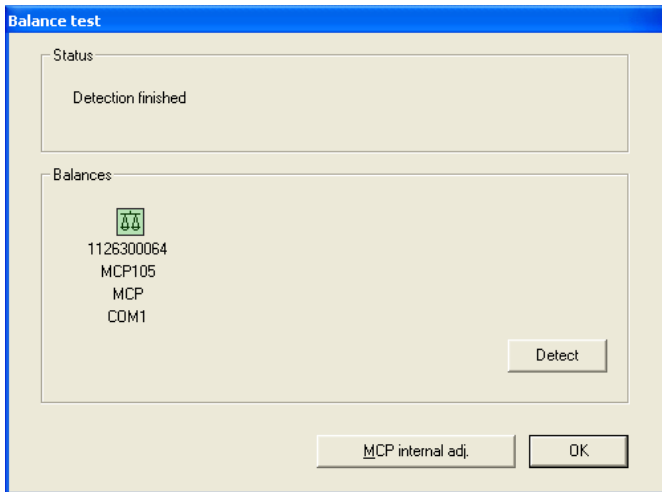
Click on "Finish" and finally confirm by clicking "OK" twice.

Settings in Calibry

In the "Options/Configuration/Database" menu of Calibry (also see chapter 15.2) the following entries are required:

Name	Name of the database (e.g. "Calibry")
Engine	SQL-Server
DSN	Name that refers to the data source (e.g. "Sommer")

2.6 Automatic balance check



Every time the application is launched, Calibry automatically checks the balances that are connected to the PC and ready for operation, and displays the results in the status area. Balances that are readily available to Calibry are shown in the lower part of the window. The balance check may be repeated as needed by clicking on **"Detect"**. If the results of the check prove to be OK you may click on **"OK"** to start working with Calibry.

Note: A gray balance symbol indicates that Calibry cannot verify the respective balance.

Further information about the balance check on application launch and on balance adjustment is found in chapter 4.

2.7 Data security

The database file should be backed up on a regular schedule, preferably to an external storage device or server. In case of a disaster (hard disk failure, software problems, etc.) you may simply reinstall Calibry from the CD-ROM and then replace the newly installed database with your backup copy.

Note: In case you are working in a SQL Server environment please contact your system administrator to have the database backed up on a regular schedule.

2.8 Software update procedure

Calibry is under continuous development and METTLER TOLEDO provides the latest versions of the application to their registered customers.

Please note the following before starting an update procedure:

- For all pipettes that have already undergone a status check ("As found" measurement) make sure the calibration procedure has been completed (i.e. the "As returned" measurement must have been carried out). Verify this in the "Tasks" list and carry out the measurements that are probably missing.
- Back up your database before starting the update procedure (see chapter 2.7).
- Quit Calibry (if you are working on a network, quit the application on **all** workstations).

Please proceed as follows when updating Calibry:

Install the new version of Calibry (see chapter 2.2).

Restore your previous database to the desired location.

Remove the old version of Calibry from your computer using the Windows Control Panel ("Control Panel → Add or Remove Programs").

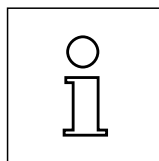
Launch Calibry. If Calibry starts up with an empty database you will have to modify the path setting that tells the application where to locate the database (menu "Options/Configuration/Database/Name", see chapter 15.2).



Calibry will recognize that the version of your previous database is invalid and the application will issue an error message similar to the one shown at left. Quit Calibry and update your database as follows:

From the Windows Start menu launch the **DB Update** application ("All programs"/Mettler-ToledoAG/Calibry 4.0/DB Update"). Calibry will briefly confirm the successful update of your database.

Launch Calibry and click on all menus ("tabs"), one after the other. Check the appearance of all windows. In case a window does not display properly, reset its viewing properties to the default setting (menu "Options/Viewing Options", see chapter 15.3).

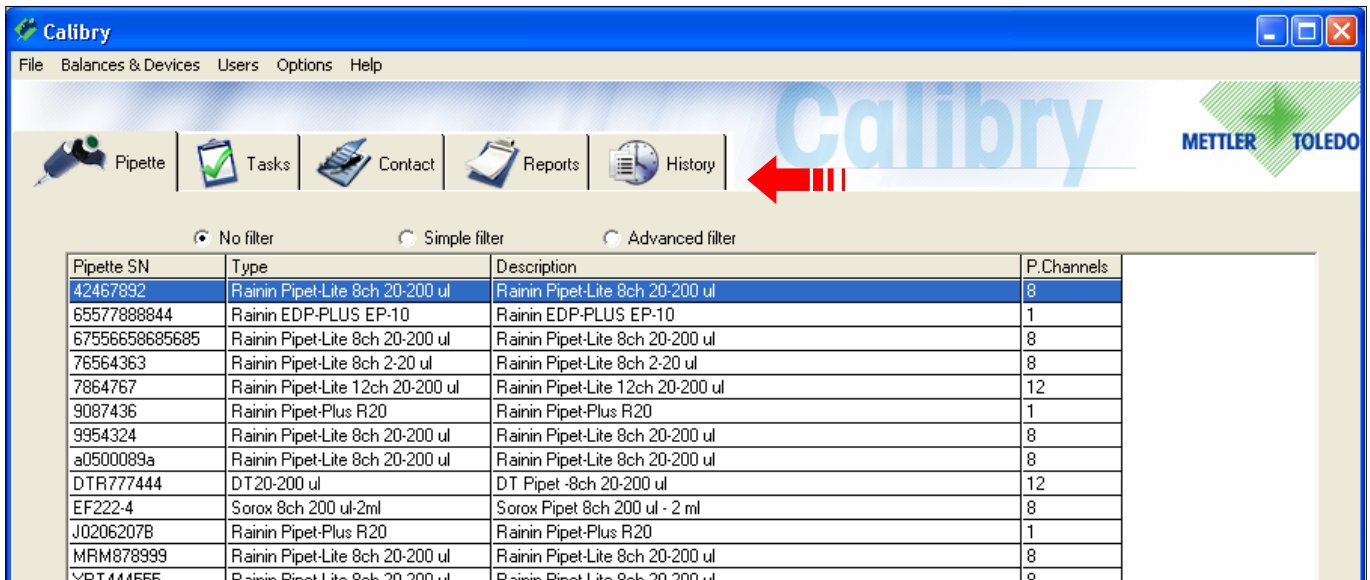


Note: The update procedure automatically transfers the current configuration data and the licensing information. However, with Windows Vista® this transfer may fail and you will have to register and configure Calibry again.

3 Instructions for Using Calibry

This chapter gives you basic information about the structure of the software and operation of Calibry. **Note:** In case you encounter problems with Calibry we recommend to check the application preferences in the first place ("Options/Configuration" menu, chapter 15).

3.1 The tabs



The menus needed for daily work are available via 5 "tabs" ("Pipette", "Tasks", "Contact", "Reports", and "History").

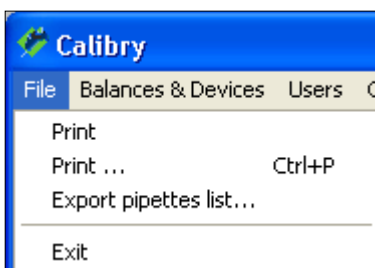
Configuration tasks that are required every once in a while are available via various menus located in the menu line above the tabs (see next chapter).

When you start Calibry the "Pipette" menu is displayed. This can be changed in the "Options/Configuration" menu (see chapter 15.2).

Click on the desired tab to load the respective menu.

3.2 The menu line

The menu line above the tabs offers the following options:



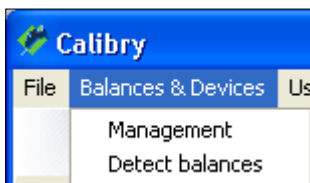
FILE

Print: Prints the currently displayed list on the printer defined in Windows as standard.

Print... Ctrl+P: Calls up the Windows printer dialog in which you can select the printer on which you want current list to be printed.

Export...: Writes the contents of the currently display list into a text file and saves the file in a selectable directory.

Exit: Quits the program.



BALANCES & DEVICES

Management: Launches a menu for manually adding or deleting balances and other peripheral instruments (barometer, thermometer and hygrometer) to Calibry. In addition, you may enter adjustment data of these devices. It is worthwhile updating the list of executed device adjustments on a regular schedule as this will provide an instant overview of all adjustments performed for a particular device, together with the respective date and result.

Furthermore, this menu includes an option to start the internal adjustment of some METTLER TOLEDO balances directly (e.g. MCP series), without resorting to the balance's keys or menu. For further information please refer to chapter 4.

Detect balances: Carries out the same balance check as on application launch (see chapters 2 and 4).

USERS

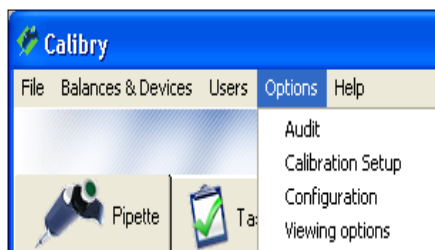


Management: Accesses the menu for the user management of Calibry. You can set up different users for which different authorizations can be determined.

User Levels: The levels of authorization ("User Levels") determine which actions a user is allowed to carry out. In this menu you can create, edit or delete levels of authorization.

Further information on user management and authorization levels is found in chapter 12.

OPTIONS



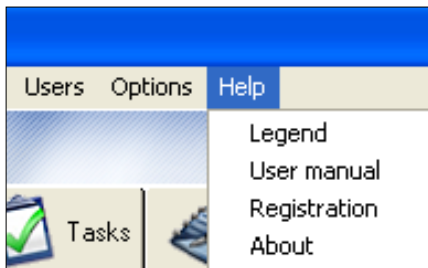
Audit: Calibry constantly records all work steps which are executed. "Audit" allows you to display the audit trail. Further information on the "Audit Trail" is given in chapter 13.

Calibration Setup: In this menu you may configure some basic settings for pipette calibration. For further information please refer to chapter 15.1.

Configuration: Calls up the configuration menu in which you can change various parameters of Calibry. Further information is found in chapter 15.2.

Viewing Options: In this menu you can change the layout of Calibry. Further information is given in chapter 15.3.

HELP



Legend:

Displays a legend which explains symbols which are used in various lists.

User Manual:

Opens the current user manual in Adobe Acrobat®.

Registration:

Gives access to the registration dialog.

About:

Displays information about Calibry.

3.3 The filters

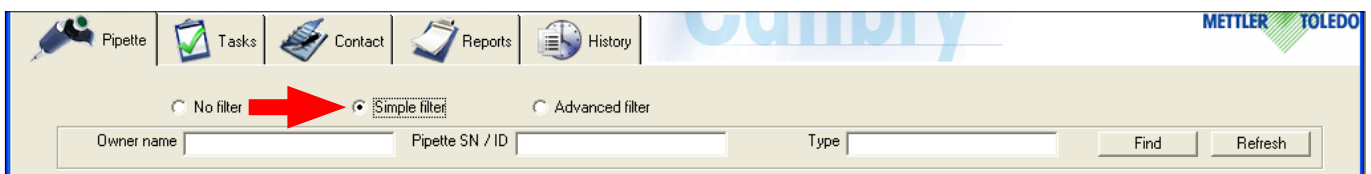
All menus (tabs) of Calibry contain lists (pipette list, contact list, etc.). These lists can be very long and make finding a particular item rather time-consuming. With the aid of filters, the length of a list can be temporarily reduced to the desired entries. Above every list there are three radio buttons:

No filter: There are no options available for filtering the list.



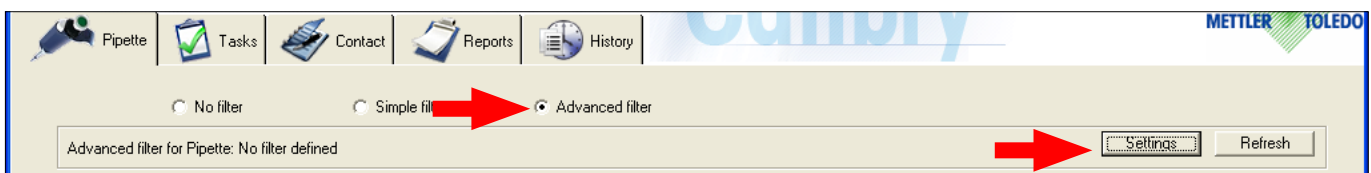
Simple filter:

There are various preset fields available for filtering the list. You may filter the list using one or more criteria. The number and type of available filter fields depend on the list currently displayed. Enter the desired criteria, then click on "Find" to start filtering. After filtering you will have to select "No filter" to display the entire list again.



Advanced filter:

You can create your own filters. To do so, click on the "Settings" button to launch the filter editor. chapter 16 explains how to use the filter editor. After you have created your own filter, the list will be filtered accordingly. After filtering you will have to select "No filter" to display the entire list again.



Notes

- When quitting Calibry the filter settings will be maintained, i.e. the lists will still be filtered when launching the application the next time.
- All printing and export functions relate to the contents of the current list. **If you want to print or export the complete list, make sure it is not filtered!**

3.4 The optional menu

If you position the cursor in the current list and click with the right mouse button an additional menu appears giving you quick access to particular functions. **The contents of this optional menu depend on the list currently displayed.**

Calibrate
View history
Add pipette
Edit pipette
Delete pipette
Refresh
Show simple filter
Show advanced filter
Define view

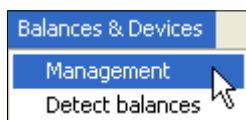
Example of options available in the "Pipette" list:

- Calibrate:** Starts the calibration dialog for the selected pipette, corresponds to the button with the same name.
- View history:** Displays the history of the selected pipette (see chapter 11).
- Add pipette:** Adds a new entry to the current list (a new pipette, in this example), corresponds to the button with the same name.
- Edit pipette:** Edits the parameters of an entry already included in the current list, corresponds to the button with the same name.
- Delete pipette:** Deletes an existing entry from the current list, corresponds to the button with the same name.
- Refresh:** Updates the contents of the current list.
- Show simple filter:** Activates simple filtering of the current list ("Simple filter", see previous chapter).
- Show advanced filter:** Activates custom filtering of the current list ("Advanced filter", see previous chapter) and launches the filter editor.
- Define view:** Opens "Options/Viewing Options" menu where you can change the appearance of the current list (see chapter 15.3).

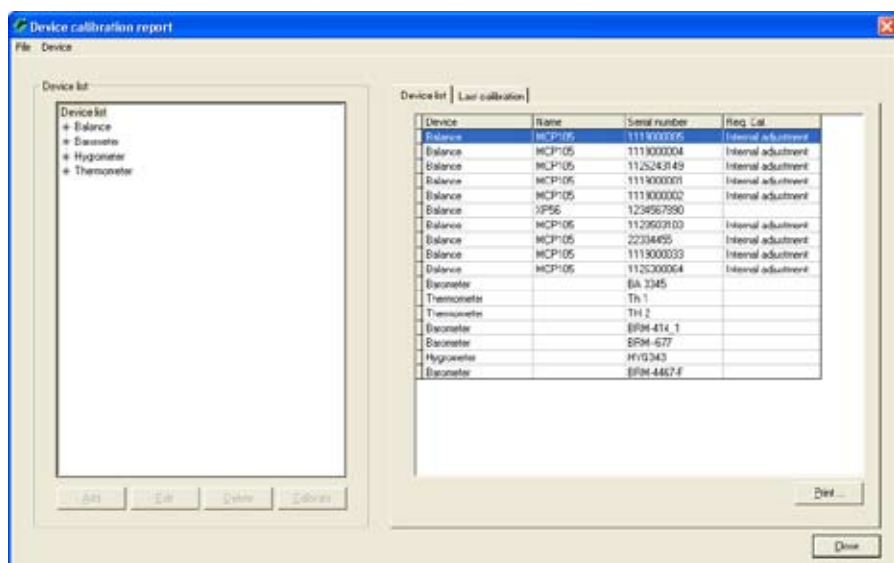
4 Specifying, Managing and Adjusting Balances and Peripheral Devices

Upon startup Calibry automatically detects and recognizes most balances by METTLER TOLEDO (chapter 2.6), hence you do not need to define such balances manually.

However, balances supporting uni-directional communication only cannot be recognized automatically and you will have to add such balances to Calibry manually. The menu described hereafter lets you define balances manually, and you may change or make up the settings of balances already known to Calibry. In addition, you may configure peripheral instruments such as thermometers, barometers and hygrometers.



Launch the “Balances & Devices/Management” menu.



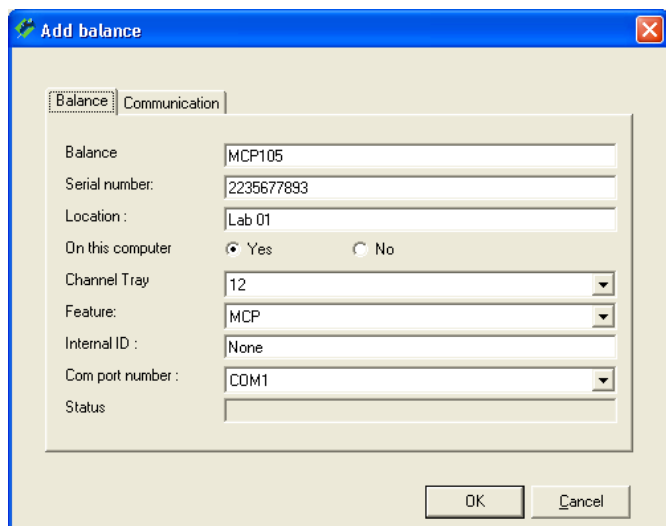
In the left part of the window there is a list containing the available types of devices (balances, barometers, thermometers and hygrometers) while the right part shows all instruments known to Calibry. The “Req. Cal” column indicates whether an adjustment is due for the respective instrument.

Clicking on a particular type of device in the left part of the window reduces the list on the right, displaying only the instruments belonging to that type (e.g. balances).

Click on the “+” sign to display all instruments of the respective type. Clicking on a particular device displays the adjustment data of that unit in the right part of the window (“Calibration”).

4.1 Defining a new balance

To define a new balance highlight the device type “Balance” (or any of the balances in the list) in the left part of the window, then click on the “Add” button below the device list. A window appears for entering the balance parameters.



Enter the data for the balance:

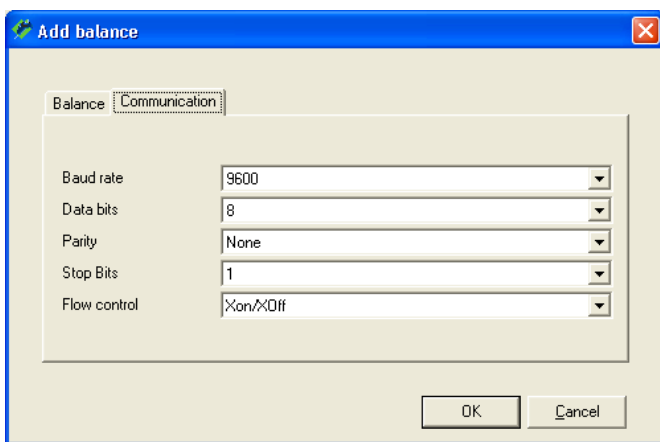
Balance: Designation of the balance. Choose a meaningful designation, e.g. a model designation of the balance.

Serial number: Serial number of the balance. **Caution: This number must exactly match the serial number stated on the type plate of the balance!** Calibry verifies the number, the serial number must be unique.

Location: Location of the balance.

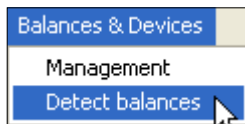
On this computer: Determines whether the balance is connected locally to the PC on which Calibry is running (“Yes”), or to a remote PC (“No”). You may work only with balances that are locally connected to your PC (also see chapter 4.4).

- Channel tray:** Maximum number of pipette channels which is supported by the balance.
- Feature:** Special communication protocols for certain METTLER TOLEDO balances. Choose the appropriate balance from the list or select "None" if you are using a third-party product or an older METTLER TOLEDO balance that is not directly supported by Calibry.
- Internal ID:** This entry is optional and only relevant if two or more balances of the same type are connected. The "Internal ID" allows the balances to be uniquely identified.
- COM port number:** The RS232C interface of the computer to which the balance is connected.



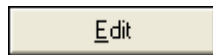
Click on the "Communication" tab and you can now enter the communication parameters for the selected interface. Make sure that the values match those which were set for the balance, otherwise Calibry cannot communicate with the balance.

When all the balance and communication parameters have been entered, click on the "OK" button to save the settings. The newly defined balance now appears in the list.



If you wish to test the communication between Calibry and the newly set up balance, return to the main application window and then select the "Balances & Devices/Detect balances" menu. Calibry now checks the communication with all known balances. If the newly set up balance does not show up in the list of recognized balances, check the communication parameters and cabling between the balance and your computer. In addition, please check whether the serial number you entered upon balance setup matches the serial number stated on the type plate of the balance.

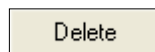
4.2 Changing balance parameters



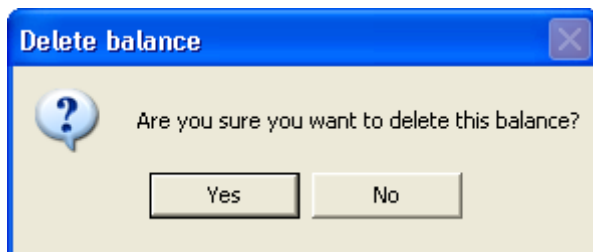
To change the parameters of a balance which has already been defined, mark the respective balance in the list and then click on the "Edit" button. The same window opens as for defining a new balance. You may change all parameters except the serial number.

Note: To activate the changes you either need to select the "Balances & Devices/Detect balances" menu from the main application window or restart Calibry.

4.3 Removing a balance



To remove an existing balance from the list, mark the respective balance in the list and then click on the "Delete" button.



For safety reasons you are asked whether you really want to delete the balance. Selecting "Yes" does not truly delete the balance from the list but adds the "Deleted" tag to it.

Notes

- Balances currently connected to Calibry carry the "Connected" tag in the list and cannot be deleted. If you need to delete such a balance you will have to switch it off or disconnect it from the PC and then select the "Balances & Devices/Detect balances" menu in the main application window. Calibry now recognizes that the balance is no longer connected and can be deleted.
- If a deleted balance is reconnected to the PC and switched on, it will be recognized and reactivated automatically the next time Calibry is launched.

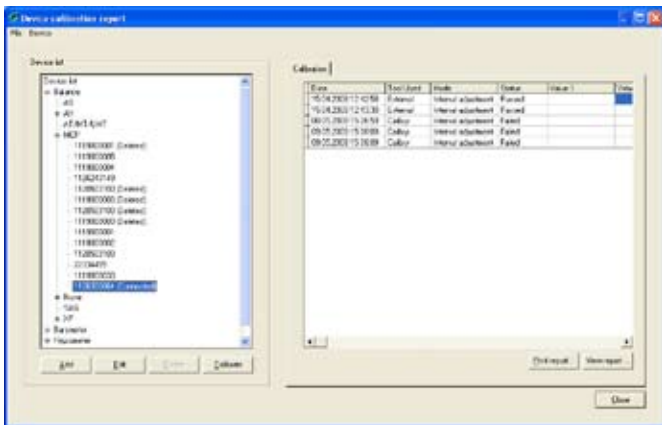
4.4 Notes about the balance check upon application launch

Every time the application is launched, Calibry automatically checks the connected balances (the same check can be done via the "Balances & Devices/Detect balances" menu). If Calibry detects an unknown balance, the instrument will be added to the list and all parameters will be configured automatically.

However, if you have connected a balance and it is not recognized automatically, this may be a third-party product and/or a balance that does not support bidirectional data communication. Calibry does not recognize such balances automatically but you may add such an instrument to the device list and configure it manually (chapter 4.1).

Calibry stores the device list in the "calibry.mdb" database. If your PC is part of a network where several PCs are accessing the same Calibry database, the device list will show **all** balances including the ones that are not connected directly to your PC. For such balances make sure to select the setting "On this computer" = "No" (chapter 4.1).

4.5 Adjusting the balance

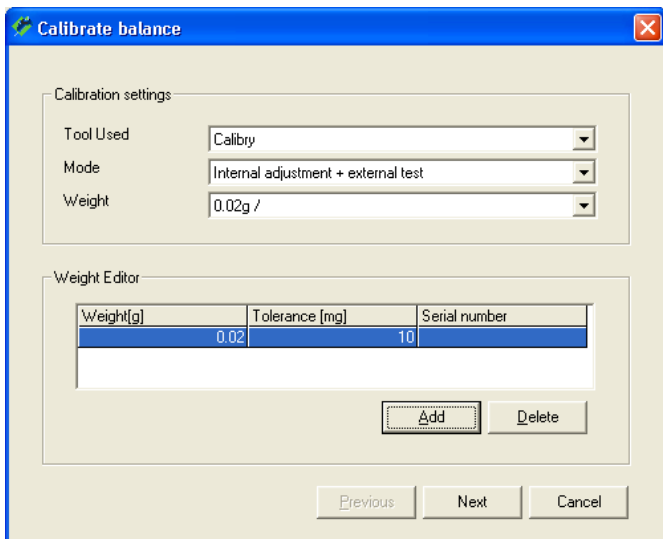


From the device list select the balance you wish to adjust. The lists contains all balances known to Calibry, even those that are not currently connected or have been deleted previously. You may launch the adjustment procedure from within Calibry only for those balances that are connected and ready for operation and that have been properly detected by Calibry ("Connected"). Deleted balances cannot be adjusted. For balances that are available but are not connected to Calibry, you will have to launch the adjustment from the balance and then enter the results in Calibry. The same applies to balances that are not directly supported by Calibry (i.e. if the adjustment cannot be launched from within Calibry).

The right part of the window shows a list of all adjustments that have been carried with the selected balance.

To launch the adjustment procedure, click on the "Calibrate" button below the list.

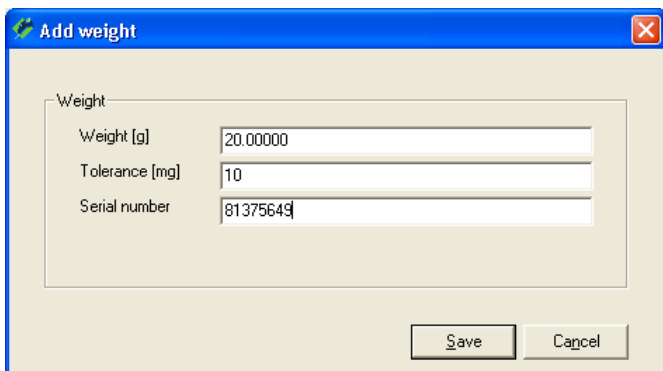
The "Calibrate balance" window provides the following options:



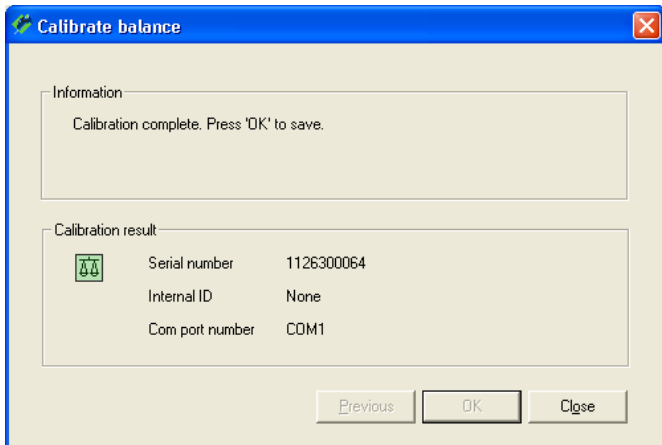
Tool Used: Select "Calibry" if you wish to launch the adjustment from within Calibry (assuming the selected balance is directly supported by Calibry). Select "External" if you wish to launch the adjustment from the balance and then manually enter the result in Calibry, or if you wish to enter the values of an adjustment certificate. In case Calibry does not directly support a particular balance, "External" will be the only option available.

Mode: You may choose whether you wish to perform a simple adjustment with the built-in adjustment weight of the balance ("Internal adjustment"), or if adjustment is to be followed by a test with an external test weight ("Internal adjustment + external test"). Selecting the third option ("External test" + internal adjustment + external test") adds an additional external test before the adjustment.

Weight: Select the test weight to be used from the list (weight in grams). This option is available only for the adjustment modes including a test with an external test weight (see above).



If the required test weight is not available from the list, you may click on the "Add" button and then edit the list of test weights. In the window shown to the left, enter the weight, the tolerance and the serial number of the new test weight. Click on "Save" and the new test weight will be readily available from the list.



Click on the **"Next"** button to launch the adjustment.

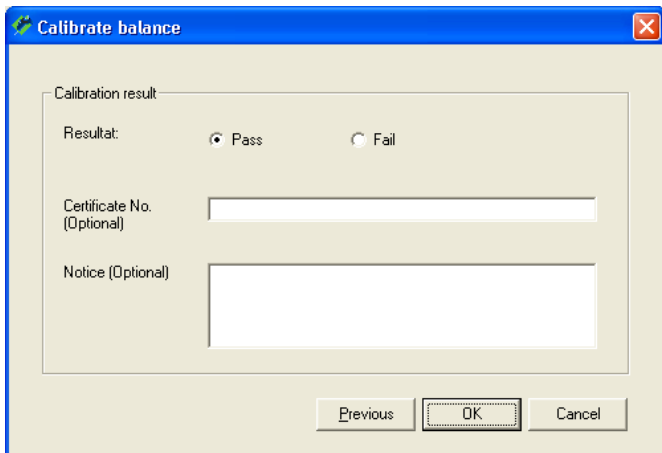
Calibry starts the adjustment and asks you to stand by until the procedure is complete. The example at left confirms completion of an adjustment with the built-in weight of the balance (without external test).

Click on the **"OK"** button to terminate the adjustment. The adjustment just completed is added to the list of adjustments.

The **"View report..."** and **"Print report..."** buttons let you display or print the respective adjustment report.

Notes

- If you have selected one of the adjustment modes including an external test, Calibry will ask you to put on the external test weight before and/or after adjustment and to launch the test from the balance. The balance sends the results of the test measurement(s) to Calibry where they appear in the "Value" fields.
- The opposite windows appears if you do not start the adjustment from Calibry but from the balance ("Tool Used" = "External"). Once the adjustment has been completed you may enter the result ("Pass" or "Fail") manually. In addition, you may enter the number of the adjustment weight certificate as well as a notice.



4.6 Managing and adjusting peripheral devices

Besides the balances the device list contains auxiliary devices such as barometers, hygrometers and thermometers.

Note: When working with the Calibry Capture Tool (which automatically transmits environmental data to Calibry, see chapter 16.3) the connected measuring instruments are recognized and added to the list automatically.

If you wish to add a new device manually, highlight the appropriate type (barometer, hygrometer or thermometer) in the list and then click on the **"Add"** button.

Make sure the desired type of device (barometer, hygrometer or thermometer) appears in the **"Type"** field, then enter the serial number of the new device. Click on the **"OK"** button to add the new device to the list.

Note: If the new device does not show up in the list, select **"Refresh"** from the **"File"** menu item to update the list.

If you wish to enter the **adjustment data** of a barometer, hygrometer or thermometer, select the respective device from the list and then click on the **"Calibrate"** button. The window shown at left appears and you may enter the result of the adjustment ("Pass" or "Fail"). In addition, you may enter the number of the certificate as well as a notice.

Note: In the "Options/Configuration" menu (chapter 15) you may select additional fields for the entry of measurement errors to show up in this window.

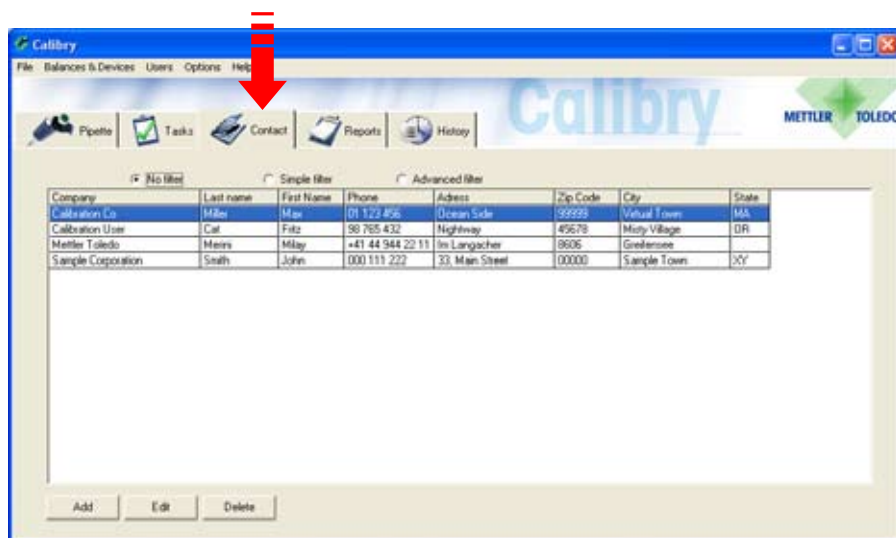
Click on the **"OK"** button to confirm your entry. This adds the data to the list of adjustments performed with the respective device.

You may click on the **"View report..."** and **"Print report..."** buttons to display or print the report of any adjustment in the list.

If you wish to remove a particular device, select the respective entry from the list and then click on the **"Delete"** button.

5 Defining Contacts

For each pipette the corresponding customer data must be available. These "contacts" are part of every pipette definition and must be available before you define a new pipette.



Click on the "**Contact**" tab to open the menu for defining customer data.

In the example at left, some contacts have already been defined.

Note: You can adapt the layout of the contact list to your specific requirements. The layout is adapted in the "Options/Viewing Options" menu and described in chapter 15.3.

5.1 Defining a new contact

To define a new contact, click on the "**Add**" button at bottom left in the main "Contact" window. A window opens for entering the customer data.

Owner | Delivery | Invoice

Company: Midtown Pipette Corporation

Client #: 4177

Department: Pharma Lab 4

Last name: Montrose

First name: Mary

Address: 33, Main Street

State / City: XY | Pipette Town

Zip: 00000

Phone: 000 111 222

Fax: 000 111 333

E-mail: mary.montrose@mcpcip.com

Use owner address also for
 delivery address
 invoice address

Previous Next Cancel

Enter the **owner data** (see example at left). **Note:** If a contact is already available for a "Company", you can select this contact in the scroll list.

If you wish to use the same data for shipping ("Delivery") and/or invoicing ("Invoice"), check the respective boxes at the bottom of the window. This automatically copies the owner data to the respective entry masks.

If you wish to enter different data for shipping ("Delivery") and/or invoicing ("Invoice"), click on "**Next**" or on the respective tab at the top of the window.

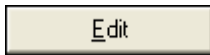
The entry masks for shipping and invoicing data are the same as for the owner data.

Using the "**Next**" and "**Previous**" buttons (or the tabs) you may switch between the entry masks at any time.

OK

When you have entered all the data, on the third menu page ("Invoice") click on the "**OK**" button to save the data. The newly defined contact now appears in the list.

5.2 Changing a contact

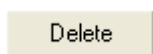


To change an existing contact, mark the respective contact in the list and then click on the "Edit" button. The same window appears as for defining a new contact.

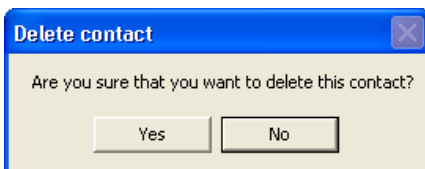


Note: Changes affect all pipettes to which the respective contact is assigned! Changes made to a contact apply to new calibration reports only, existing reports will keep the previous contact data.

5.3 Deleting a contact

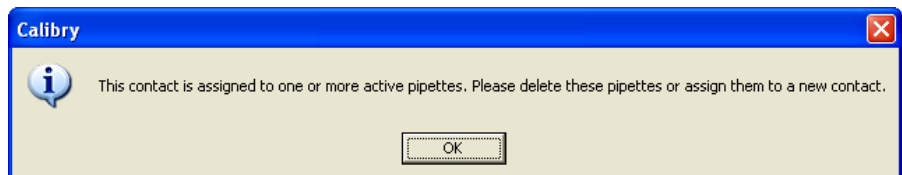


To remove an existing contact from the list, mark the respective contact in the list and then click on the "Delete" button.



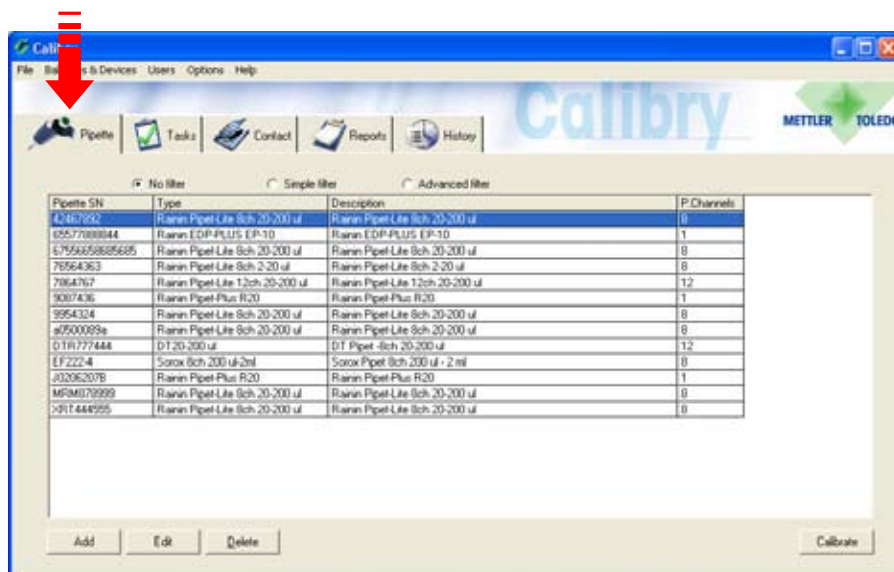
If you answer the question with "Yes", the contact is deleted from the list.

If the contact you just deleted was part of a pipette definition (see chapter 6), an additional information window appears asking you to delete the respective pipettes, or to assign a new contact to them.



6 Defining Pipettes

To make defining new pipettes easy, Calibry has a **pipette assistant** which guides you step by step through all the necessary inputs.



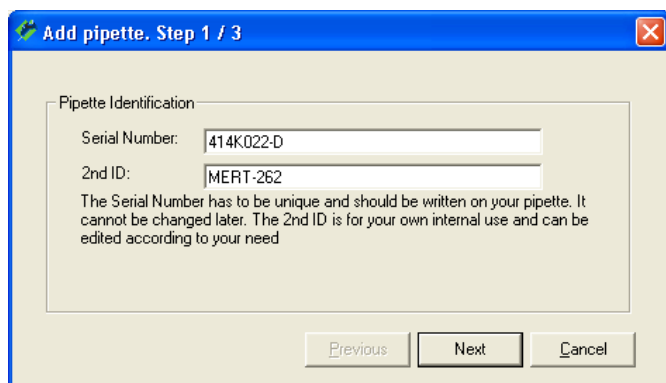
Click on the **"Pipette"** tab to open the menu for defining pipettes.

In the example at left, some pipettes are already defined.

Note: The layout of the pipettes list can be adapted to your specific requirements. The layout is adapted in the "Options/Viewing Options" menu which is described in chapter 15.3.

6.1 Defining a new pipette

To define a new pipette click on the **"Add"** button at bottom left in the main "Pipet" window. This starts the Pipette Assistant.



Step 1: Enter pipette serial number and ID

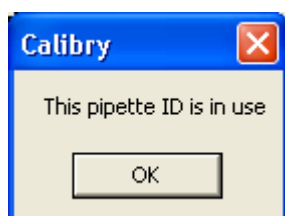
In the first window of the Pipette Assistant you are prompted to enter the **serial number of the pipette**. This entry is mandatory and the serial number must be unique. Carefully check your entry as it cannot be changed later on!

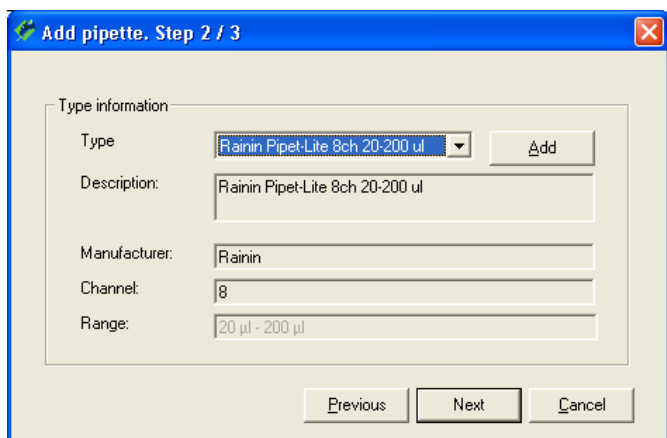
Optionally, you may enter a **second identification** for the pipette ("2nd ID"), such as an internal designation. The second ID does not need to be unique thus you may assign the same ID to several pipettes.

Notes

- If you use a serial number which currently exists in the pipette list, the error message shown at left appears.
- If you enter the serial number of an earlier pipette that has undergone at least one calibration and was then deleted, you are asked whether you wish to reactivate the deleted pipette.

Click on the **"Next"** button to call up the next window of the Pipette Assistant.





Step 2: Defining the pipette type

In the second window of the pipette assistant, you define the pipette type. Click on the arrow next to the type designation to display a list of all available pipette types. The fields below the type designation contain additional information about the selected pipette type.

If the desired pipette type is available in the database and all displayed information is correct you may click on **"Next"** to load the third window of the pipette assistant.

However, if none of the available pipette types correspond to your new pipette, click on the **"Add"** button to create a new pipette type as explained below.

Creating a new pipette type

Select from the list a pipette type which is as near as possible to the new type you want to create and then click on the **"Add"** button. The parameters of the selected type can be edited in the lower part of the window:

Type: Name for the new pipette type.

Description: Description for the new pipette type.

Manufacturer: Enter the manufacturer of this pipette type.

Channels: Number of channels of this pipette type.

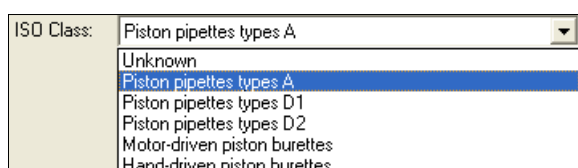
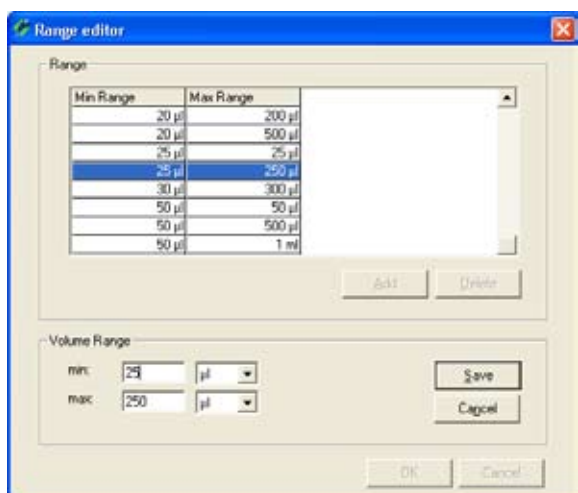
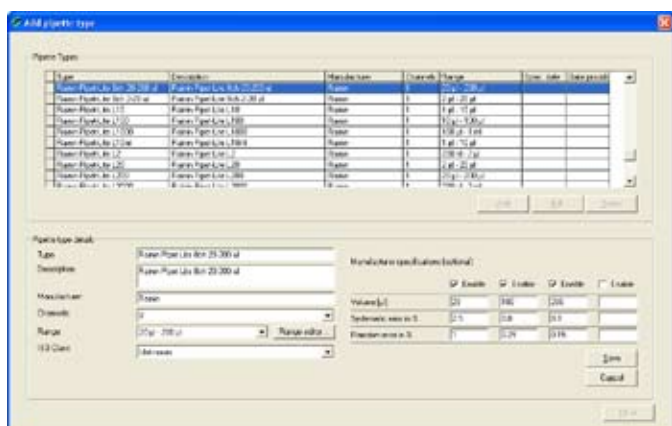
Note: Pipette types set up by METTLER TOLEDO (the "Data Provider" column states "METTLER TOLEDO") cannot be modified, however you may use them as a basis for your own pipette type ("Data provider" = "User").

Range: From the list, select the volume range which applies to the new pipette type.

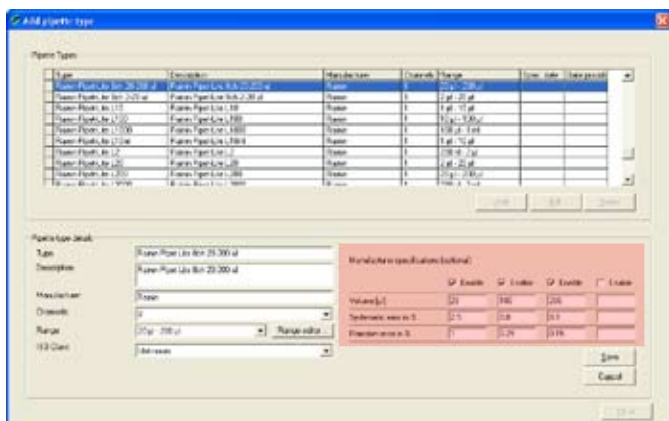
If no suitable range is available, click on the **"Range editor"** button to define a new range: Click on the **"Add"** button. In the **"min"** and **"max"** fields enter the minimum and maximum volumes of the respective pipette type and the corresponding unit.

Click on **"Save"** to save the new range.

Quit the "Range Editor" and the new range is now available in the "Add pipette type" window.



ISO Class: Class according to ISO 8655 for the current pipette type. If the pipette type does not match an ISO class or if you do not know the class, select "Unknown".



Save

In the “**Manufacturer specifications (optional)**” area you may enter the calibration specifications set up by the manufacturer for this particular pipette type. This data will then be available in the calibration dialog and can be used as the basis of a test method. If you do not enter the specifications here, you may specify them later when calibrating the pipette.

You may specify up to 4 volumes to be checked. If they are not already active, check the boxes labeled “Enable”. Enter the test volumes and the appropriate “Systematic error” and “Random error” (for explanations of “Systematic error” and “Random error” see below).

Click on “**Save**” to save the new pipette type.

Note: If you changed and saved the data of an existing pipette type, the respective type might appear twice in the list thereafter, however, the entries differ in the “Spec. date” column.

If you do not want to define any further pipette types, click on “**Close**” to return to the Pipette Assistant.

Click on the “**Next**” button to call up the next window of the Pipette Assistant.

“Systematic error” and “Random error”

The “Systematic error” is the difference between the reference value and the arithmetic mean of the actually measured values. The “Random error” defines the scatter of the measured values and is related to the standard deviation.

Step 3: Defining a contact

In the third and last window of the Pipette Assistant define the contact for the new pipette.

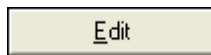
Click on the arrow by the contact designation to display a list of all available contacts.

If the required contact does not exist, click on the “**Add**” button to define a new contact (see chapter 5).

Click on the “**OK**” button to terminate definition of the new pipette.



6.2 Editing pipettes

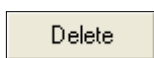


Once a pipette has been defined, the only parameters you can change are the **contact** that is assigned to the pipette in question as well as the **second identification** ("2nd ID").

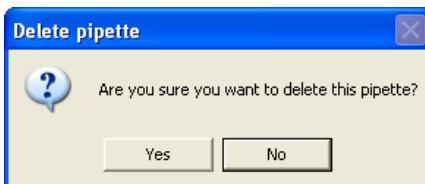
Mark the respective pipette in the list and then click on the "**Edit**" button. This starts the Pipette Assistant and you may assign a new contact and/or a new second identification to the pipette.

Note: If you have assigned a wrong pipette type to a particular pipette, you will have to delete the pipette and define it again from scratch. However, this can be accomplished only after all existing calibration reports of the respective pipette have been deleted (chapter 10).

6.3 Deleting pipettes

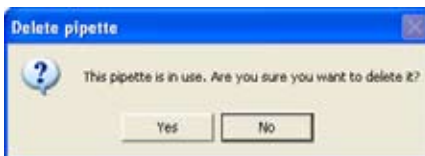


To remove a pipette from the list, mark the respective pipette in the list and then click on the "**Delete**" button.



A question appears asking whether you really want to delete the pipette.

If you answer the question with "Yes" the pipette is deleted.

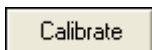


If the pipette you want to delete has been calibrated at least one time the database contains respective calibration data. For this reason, a further question appears before the pipette is deleted.

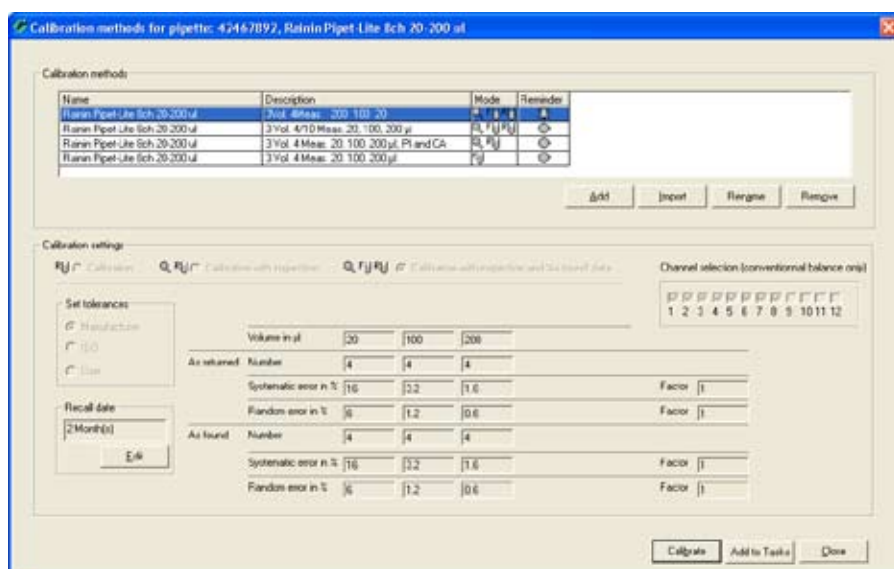
If you answer the question with "Yes" the pipette is deleted along with the associated entries in the "Tasks" list.

7 Defining Test Methods

A test method determines the calibration procedure for a particular pipette. At least one test method must be assigned to a pipette, otherwise no calibration can be carried out.



In the **"Pipette"** menu mark the desired pipette, then click on **"Calibrate"** (alternatively, you may simply double-click on the appropriate pipette in the list). This launches the dialog for selecting a test method, as shown below. Refer to the following chapters for explanations on how to define a new test method.



A test method is made up of the following parameters:

- The calibration mode
- The volumes to be checked
- The pipette channels to be checked
- The number of measurements per volume
- The admissible tolerances
- The calibration data (optional)

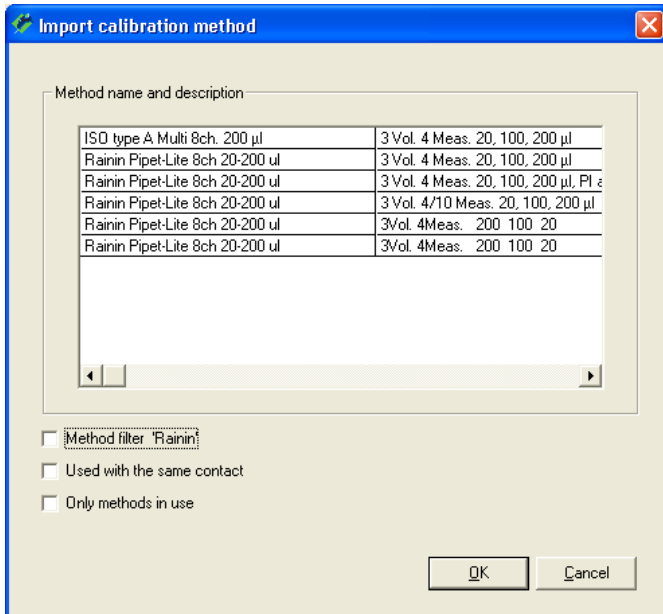
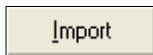
In the example shown at left, some test methods have already been assigned and appear in the upper part of the window. The parameters of the currently selected test method are displayed in the bottom half of the window. If you select another test method from the list you may watch the parameters change.

If an appropriate test method is readily available from the list, you may select it and then click on **"Calibrate"** to start calibration immediately (chapter 9), or you may click on **"Add to Tasks"** to insert the pipette into the "Tasks" list (chapter 8).

For newly defined pipettes the list does not contain test methods. In this case you may either insert an existing method into the list or define a new method as explained in the following chapters.

Of course, you may define new test methods for existing pipettes at any time .

7.1 Loading an existing test method



To add a test method already available in Calibry to the list, click on the **“Import”** button below the method list.

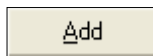
The window shows the test methods available for the current pipette (based on the number of channels and the measuring range).

To shorten the selection of methods you may check one (or several) of the checkboxes below the list:

- **“Method filter ‘xxx’”** displays only methods having a designation that matches the pipette name (first word of both designations must match).
- **“Used with the same contact”** displays only the methods that have already been used for the same customer (contact).
- **“Only methods in use”** displays only methods that are assigned to at least one other pipette.

Select the appropriate test method, then click on **“OK”** to add the method to the list.

7.2 Defining a new test method



To define a new test method, click on the **“Add”** button below the method list. This activates the respective buttons and entry fields.

Note: If there are already test methods in the list, mark the method which is most like the new method you want to define and then click on **“Add”**. The data of the selected method is used as the basis for the new method and can be modified as required .

Selecting the calibration mode

The calibration mode determines the procedure for the calibration and the steps which must be performed.

“Calibration”

Simple calibration without additional measures.

“Calibration with inspection”

Calibration with inspection of the pipette for faults and measures for fault correction. During a calibration additional windows are opened in which you can enter information regarding inspection and fault correction. This information is included in the printed reports.



“Calibration with inspection and ‘As found’ data”

Calibration with inspection for faults and measures for fault correction (see above) but with an additional status check (“As found”) before the actual calibration. The status test takes the form of an inspection on receipt and usually consists of a shortened measurement. The results of the status check, the inspection, and the fault correction measures performed are recorded.

You will find details of the procedures for the individual calibration modes in chapter 9.

Selecting the pipette channels to be tested

At the factory Calibry is pre-configured to test all channels of a pipette. However, you may individually select the channels to be checked. **Note:** If you reduce the channels to be checked, multichannel calibration systems such as the MCP by METTLER TOLEDO will be handled as single channel systems and must be configured accordingly.

Channel selection (conventional balance only)

<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5	6	7	8	9	10	11 12

Defining the volumes to be checked, the number of measurements, and the tolerances

In the central part of the window you set up the parameters for calibration.

Volume in µl	20	100	200		
As returned Number	4	4	4		4
Systematic error in %	16	3.2	1.6		Factor 1
Random error in %	6	1.2	0.6		Factor 1
As found Number	4	4	4		4
Systematic error in %	16	3.2	1.6		Factor 1
Random error in %	6	1.2	0.6		Factor 1

Volume: You may define up to 5 volumes to be checked.

As Returned Number: Number of measurements to be carried out for each volume.

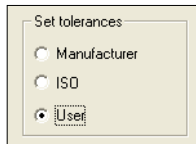
If you wish to perform the same number of measurements for all volumes, you may enter the respective value in the field at the very end of the line. This value will be used for all volumes. By default, the values 4 and 10 are available for this field (these may be modified in the “Options/Configuration” menu, see chapter 15).

Systematic error in %: Admissible allowance for the “Systematic error” in %. The “Systematic error” is the difference between the reference value and the arithmetic mean of the actually measured values.

Random error in %: Admissible allowance for the “Random error” in %. The “Random error” defines the scatter of the measured values and is related to the standard deviation.

As Found:

These entry fields are displayed only if you have selected the "Calibration with inspection and 'As found' data" mode. For the status check ("As found") you may just select the number of measurements per volume while for the tolerances the same values as for the real calibration ("As returned") are applied automatically.



Completing all fields manually may be a time-consuming job. Calibry facilitates the task with the three buttons shown at left.

Use the "Manufacturer" and "ISO" radio buttons to quickly insert the values for the volumes and the tolerances into the appropriate fields. "ISO" inserts the values according to the ISO 8655 standard while "Manufacturer" inserts the volumes and tolerances specified by the pipette manufacturer. **Important:** Both options are available only if an ISO class has been assigned and/or the manufacturer's specifications have been entered when defining the pipette type (see chapter 6).

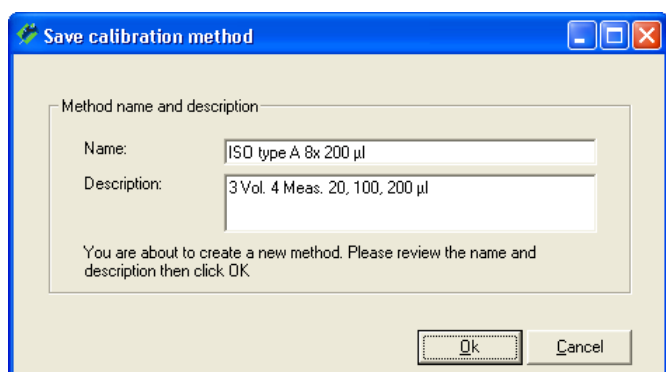
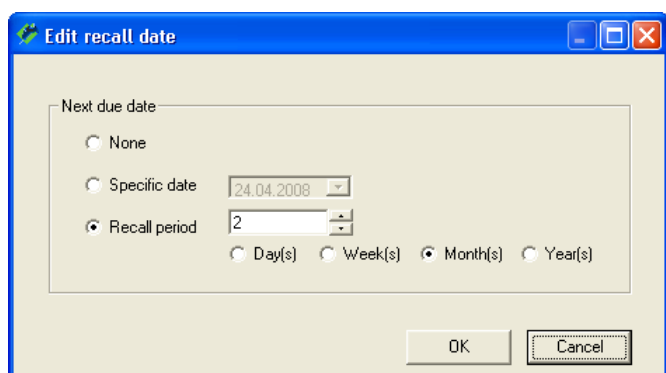
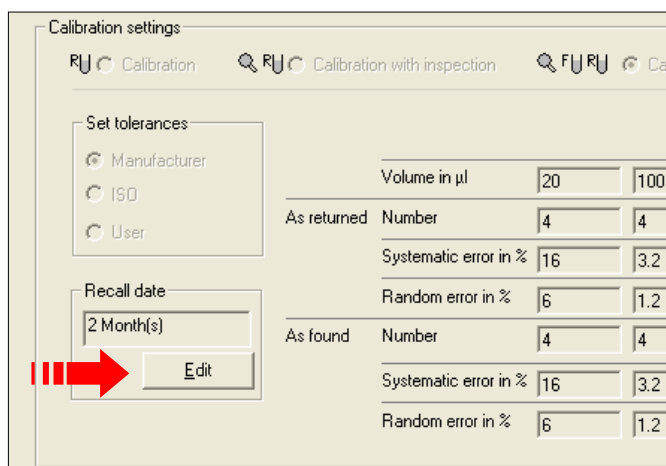
Check the "User" radio button if you wish to set up the volumes to be checked and the tolerances yourself. This activates the appropriate entry fields and you may then enter your own values.

	Volume in µl	20	100	200		
As returned	Number	4	4	4		4
	Systematic error in %	16	3.2	1.6	Factor	1
	Random error in %	6	1.2	0.6	Factor	1
As found	Number	4	4	4		4
	Systematic error in %	16	3.2	1.6	Factor	1
	Random error in %	6	1.2	0.6	Factor	1

If required, you may use the "Factor" fields to change the tolerance values ("Systematic error" and "Random Error") by an overall factor. This may be useful for pipettes that are calibrated to a particular standard but do have tolerance specifications that deviate from the standard by a fixed factor.

The "Factor" fields are also available for the "As Found" status check (assuming you have selected the "Calibration with inspection and 'As found' mode"). Usually, the status check is automatically based on the same tolerances as the actual calibration. For special cases you may modify the tolerances for the status check by entering appropriate factors for the systematic error and the random error.

Important: The "Factor" fields are available only if you have selected the "User" setting (see above), i.e. you **do not** calibrate the pipette according to manufacturer's specifications or ISO standards.



Setting up the date or interval for calibration

For every pipette you can define a date and/or interval for calibration (which also appears on the calibration reports). You can define different calibration data for each method that is available.

In the list, mark the test method for which you wish to define the calibration data and then click on the **"Edit"** button in the **"Recall date"** area of the window.

If you do not want to define a calibration date or interval, activate **"None"**.

If you want to specify a fixed date for the next calibration, activate **"Specific date"** and enter the date in the appropriate field (or click on the arrow symbol to the right of the entry field to open a calendar where you may simply click on the desired date).

If the pipette should be calibrated at regular intervals, activate **"Recall period"** and **"Day(s)"**, **"Week(s)"**, **"Month(s)"**, or **"Year(s)"** and enter the respective number in the appropriate field.

Click on **"OK"** to save the date.

If you have specified a date or an interval the pipette will **automatically** appear in the **"Tasks"** list some time before the next calibration date. How long before the calibration date can be specified in the **"Options/Calibration Setup"** menu, see chapter 15.

Saving a test method

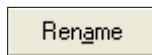
Once you have defined all mandatory parameters of the new method as well as the optional calibration data, click on the **"Save"** button to save the new test method.

Enter an appropriate **name** for the method. The method will appear with this name in the list of methods. **Note:** If the selected tolerance values are based on the ISO standard, Calibry suggests a method name starting with **"ISO..."**. If the tolerances are based on the manufacturer's specification Calibry suggests **"Manufacturer"** instead.

In the **"Description"** field you may enter a detailed explanation of the method. Calibry suggests a description based on the selected parameters.

Confirm with **"OK"** and the new method is immediately available from the list.

7.3 Changing a test method's name

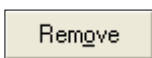


If required, you may change the name of an existing method. Mark the respective method in the list and then click on the **"Rename"** button.

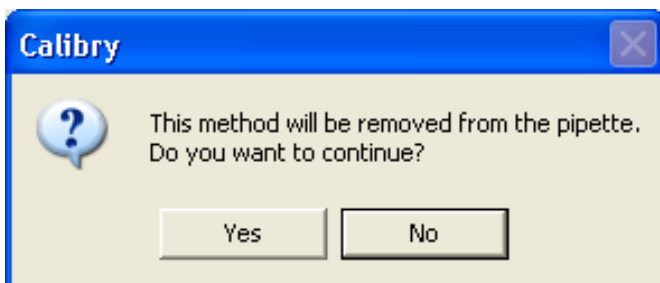
This pops up the same dialog as for saving a new method. Enter the new name and confirm with **"OK"**.

Note: The new method name will appear only on calibration reports created after the change. Existing calibration reports will keep the previous method name.

7.4 Deleting a test method



To remove an existing test method from the list, mark the method you want to delete in the list and then click on the **"Remove"** button.



If the method to be deleted has already been used for a calibration, or a pipette using this method has been added to the "Tasks" list, the additional question shown at left appears.

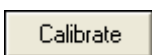
If you answer the question with "Yes", the connection between the method and the current pipette will be cancelled and the method will be removed from the list.

Caution: Pipettes in the "Tasks" list that are using the deleted method will immediately be removed from the "Tasks" list unless at least one stage of the calibration procedure has already been carried out (e.g. the "As found" status check)!

7.5 Calibrating the pipette immediately or adding the pipette to the "Tasks" list manually

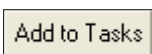


Before proceeding with steps below check all data of the current pipette including the test method and the tolerances. Faulty parameters will result in erroneous calibration results!



The following options are available after you have defined and saved the new test method(s):

If you want to calibrate the pipette with the selected method immediately, click on **"Calibrate"**. The calibration dialog will then be started without delay (see chapter 9).



If you want to add the pipette to the "Tasks" list **manually**, click the **"Add to Tasks"** button. There is further information about the "Tasks" list in chapter 8.

Note: Adding pipettes to the "Tasks" list manually is required only if no calibration date or interval was specified for the respective pipette.

The symbols in the "**Status**" column indicate which calibration mode is used for the pipette and which steps were already completed.



"Calibration": Simple calibration without additional measures.



"Calibration with physical inspection": Calibration with inspection of the pipette for faults and measures for fault correction.



"Calibration with inspection and 'As found' data": Calibration with inspection for faults and measures for fault correction (see above), but with an additional status check ("As found") before the actual calibration.



The pipette requires repair (faults were found during the inspection).

The colors of the symbols show the status of the procedure:



Gray Step not yet executed.

Green Step executed and passed.

Red Step executed but not passed.

Note: Information about the selection of the calibration mode is found in chapter 7. Chapter 9 provides information on the running sequence of the individual calibration modes.

The symbols in the "**Schedule**" column show the time-related status of a pipette in relation to the due date for calibration.



The pipette has been added **manually** to the "Tasks" list. If no calibration date or interval has been specified for this pipette, Calibry does no automatic monitoring with regard to calibration. In this case the symbol will not change and it is the user's responsibility to monitor the pipette. However, if either a calibration date or an interval has been specified, this symbol indicates that there are at least 3 days remaining between the current date and the calibration date. In this case the symbol changes automatically as soon as there are no more than 3 days remaining before calibration must take place (see information below).

The following symbols appear with pipettes for which a calibration date or calibration interval has been set up. Usually, such pipettes are added to the "Tasks" list **automatically** but you may still add them manually if you wish to do so (for further information please refer to chapter 7).



Up to 3 days remain between the current date and the due date for calibration or the due date has been exactly reached.



The calibration is overdue by not more than 2 days.



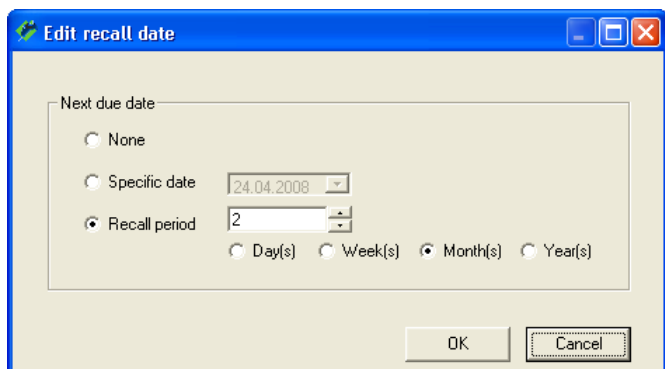
The calibration is overdue by at least 2 days.

Note: In the "Options/Calibration Setup" menu you can specify how many days before calibration is due the pipette should be automatically added to the "Tasks" list and the length of time between the individual stages (symbols). Further information is contained in chapter 15.

8.2 Deleting pipettes from the "Tasks" list

Delete

To delete a pipette from the "Tasks" list, mark the respective pipette in the list and then click on the **Delete** button.



Next due date

None

Specific date 24.04.2008

Recall period 2

Day(s) Week(s) Month(s) Year(s)

OK Cancel

A window then opens in which you can define a new calibration interval or date for the pipette to be removed from the "Tasks" list. When the interval expires or the specified date is reached, the pipette appears automatically in the "Tasks" list again.

8.3 Starting calibration

Calibrate

To start calibration of a pipette from the "Tasks" list, mark the respective pipette in the list and then click on the **Calibrate** button. Alternatively, you can double-click on the respective pipette in the list.

Instructions on how to carry out the calibration are given in chapter 9.

9 Calibrating Pipettes

The instructions in this chapter assume that all previously necessary operations have already been completed (see previous chapter).

9.1 Starting the calibration dialog



You can start the calibration dialog from the “**Tasks**” list or the “**Pipette**” menu. Highlight the pipette to be calibrated in the respective list, then click on the “**Calibrate**” button. Alternatively, you may simply double-click the appropriate pipette in the list. **Note:** If you start calibration from the “Pipette” menu you will first have to select the desired test method and then click on “**Calibrate**” again to launch the calibration procedure.

The procedure for the calibration depends on the calibration mode you have selected (with or without checking for faults, additional status check, etc., see chapter 7). The individual calibration modes are described separately below.

9.2 Simple calibration of a multi-channel pipette

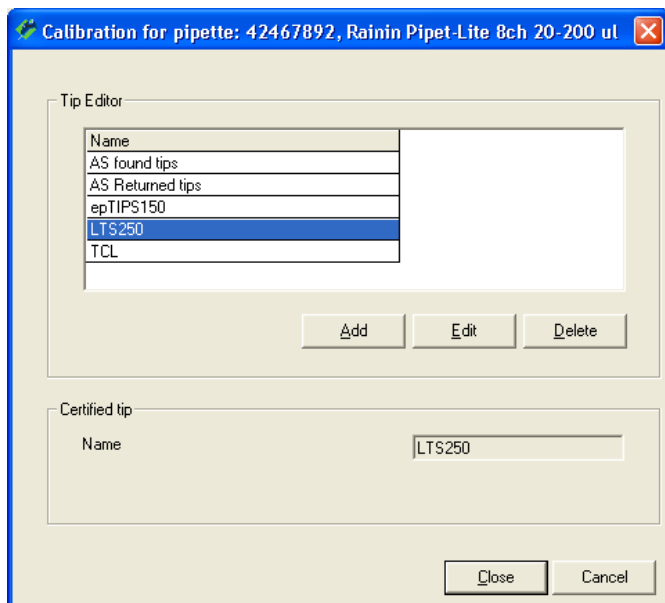
With this calibration method (“Calibration”), the pipette is only calibrated; no check for faults and no status check is made. However, please still read this chapter even if you do not want to work with this calibration method, since it contains instructions and information which also apply to the other calibration methods (e.g. selection of the pipette tips or specification of the environmental conditions).

After you have started the calibration the window shown at left appears. In this window you can specify the following parameters for the current calibration:

- The pipette tips being used
- The balance which should be used for the calibration
- An additional reference number for the current calibration (this number appears in the title of the report)
- The current environmental conditions. **Note:** In the “Options/Configuration” menu (chapter 15) you may configure Calibry to acquire the environmental parameters from an external data source automatically.

NOTE

If the current pipette can no longer be calibrated (irreparable fault) you can click on the “**Invalidate Pipette**” button. If you answer the subsequent question with “Yes”, no calibration is performed and the pipette is removed from Calibry (from the pipette list as well as the “Tasks” list, but without touching previous calibration data). Be careful with this option because there is no way of returning the pipette to Calibry after it has been removed except for a new definition.



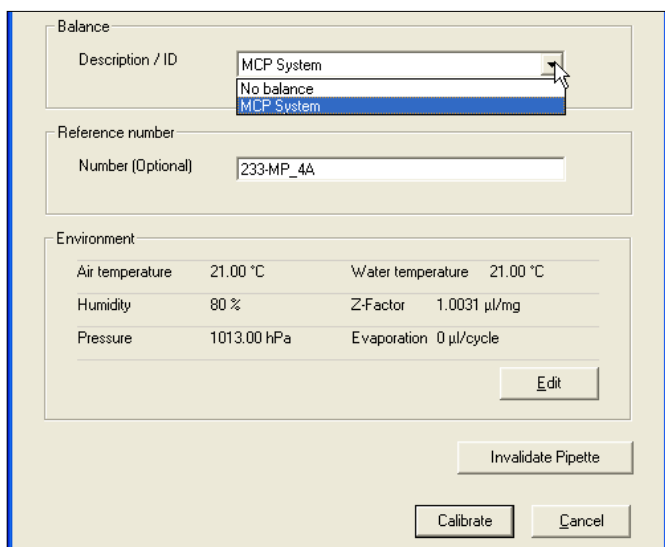
Selecting the pipette tips ("Certified Tip")

From the list, select the type of tips which are mounted on the pipette. If the current type is not in the list, click on the **"Add"** button to add a new type of tip.

In the **"Tip Editor"** you can delete tips from the list or add new ones to it. To add a new tip, click on the **"Add"** button, enter the name of the tip, and then click on **"Save"**. The new tip then appears in the list.

To delete a tip from the list, mark the tip and then click on **"Delete"**. If you answer the confirmation question with "Yes", the tip is deleted from the list.

Then click on **"Close"** to return to the previous window.



Selecting the balance

In the **"Balance"** part of the window, you can select the balance on which the calibration should be performed. All balances recognized by Calibry are shown in the list.

Note: If Calibry did not recognize a balance, only the **"No balance"** setting will be available. This setting causes Calibry to work in **demo mode** (see chapter 14).

Entering the reference number

You can enter a reference number for the current calibration. This appears on the report and makes identification of the specific calibration easier. **Note:** In the "Options/Configuration" menu (chapter 15) you may specify whether the reference number is optional or mandatory.

Calibration for pipette: 42467892, Rainin Pipet-Lite 8ch 20-200 ul

Environment

Temperature in °C

Water Z-Factor [µl/mg]

Air Evaporation [µl/cycle]

Pressure [hPa]

Humidity [%]

Z Factor according to ISO 8655:

	850 hPa	900 hPa	950 hPa	1000 hPa	1013 hPa
21.0°C	1.0029	1.0029	1.0030	1.0031	1.0031
21.5°C	1.0030	1.0031	1.0031	1.0032	1.0032
22.0°C	1.0031	1.0032	1.0032	1.0033	1.0033
22.5°C	1.0032	1.0033	1.0033	1.0034	1.0034
23.0°C	1.0033	1.0034	1.0034	1.0035	1.0035
23.5°C	1.0035	1.0035	1.0036	1.0036	1.0036
24.0°C	1.0036	1.0036	1.0037	1.0037	1.0038
24.5°C	1.0037	1.0038	1.0038	1.0039	1.0039
25.0°C	1.0038	1.0039	1.0039	1.0040	1.0040
25.5°C	1.0040	1.0040	1.0041	1.0041	1.0041
26.0°C	1.0041	1.0041	1.0042	1.0042	1.0043

Specifying the environmental parameters

In the lower part of the window the current settings for the “**Environment**” parameters are displayed. If these parameters do not correspond with the current environmental conditions, click on the “**Edit**” button to change the values.

In the table, click on the value which corresponds to the current combination of temperature and atmospheric pressure. The values (water temperature, atmospheric pressure, and Z factor) are transferred to the input fields and you need only to enter the relative humidity (“Humidity”), the air temperature, and possibly also the evaporation factor (“Evaporation”). You can, however, also enter the values individually (the Z factor is calculated automatically).

Click on “**OK**” to transfer the values and close the window.

Note: With the factory settings Calibry assumes the water temperature and the air temperature are the same, i.e. you can just specify the water temperature. However, you may configure Calibry in a way that both temperatures can be set up independently. The “Options/Configuration” menu (chapter 15) provides many options for the environmental parameters (locking of individual values, acquisition of environmental data from external sources, calculation of the Z factor using a formula, etc.).

Starting the calibration

Calibrate

When you have input all the data, click on the "Calibrate" button to start the calibration. The window shown below opens.

Calibration for pipette: 42467892, Rainin Pipet-Lite 8ch 20-200 µl [As returned]

Information

Pipette

ID: 42467892
Model: Rainin Pipet-Lite...
Channels: 8

Method

Name: Rainin Pipet-Lite...
Description: 3 Vol. 4 Meas. 20...
Volumes: 20,100,200 µl
Channels: 8
Volume: 20 µl
weighings: 4

Environment

Pressure: 1013.00 hPa
Humidity: 80 %
Air temp.: 21.00 °C
Water temp.: 21.00 °C
Z Factor: 1.0031 µl/mg
Evaporation: 0 µl/cycle

Balance

Balance: MCP System
Tare: --

Instructions


Waiting for balance reading or change the current volume. Volume: 20µl, Measurement #1

Status | 20 µl | 100 µl | 200 µl

Status	20µl		100µl		200µl	
	Systematic error	Random error	Systematic error	Random error	Systematic error	Random error
Ch. 1	16 %	6 %	3.2 %	1.2 %	1.6 %	0.6 %
Ch. 2						
Ch. 3						
Ch. 4						
Ch. 5						
Ch. 6						
Ch. 7						
Ch. 8						

20 µl | Enable evaporation | Tare between 2 readings | Environmental ...

Balances

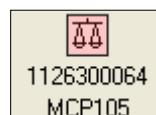
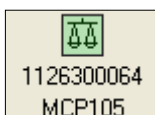
 1126300064
MCP105

Notice | View report | Restart calibration | Finish | Cancel

The left part of the window displays information about the pipette, the test method, the environmental conditions and the balance. **Note:** As long as that the calibration has not yet started, you can still change the environmental data with the "Environmental" button.

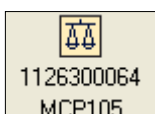
The balance selected for the calibration appears as a colored symbol in the lower part of the window. **Note:** If you selected the "No balance" setting, calibration will take place in demo mode and instead of the balance symbol there will be a field for simulating the values (see chapter 14).

Depending on the **color**, the balance symbol has the following meaning:

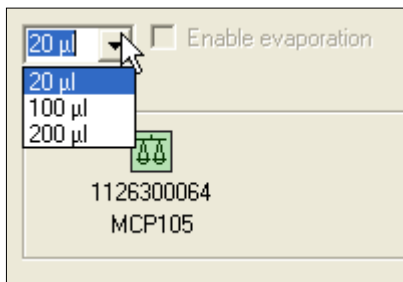
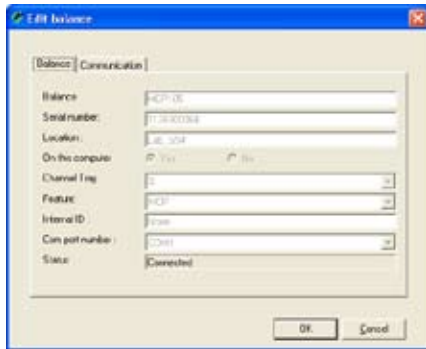


Green: The balance is ready for the calibration to be performed.

Red: The balance is not yet ready for calibration (e.g. because a reference measurement is necessary or just being performed). If a reference measurement is necessary, start it on the balance. If the reference measurement was started automatically by Calibry, wait until it has finished. When the reference measurement has been successfully completed, the green balance symbol is displayed.

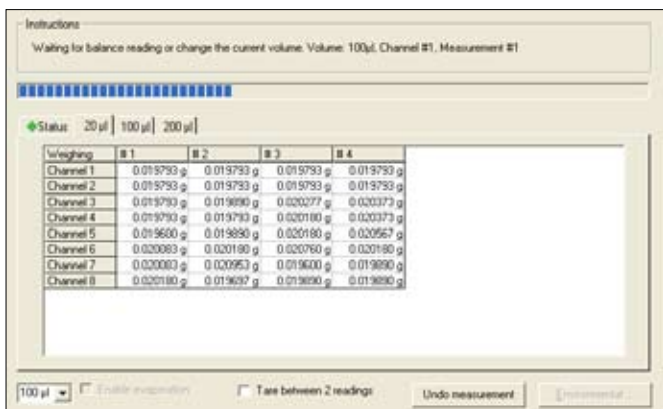


Yellow: The calibration proceeds and Calibry receives the measurement values on the balance.



Note: Clicking on a balance symbol opens a window providing additional information about the selected balance.

When the green balance symbol appears, you can select the volume you want to pipette first from the list above the balance symbol (the sequence of volumes can be freely chosen). Pipette the selected volume for the first measurement operation and start the calibration procedure with the Start button of the balance. **Make sure to pipette the appropriate volume! Note:** The order of volumes in the list can be changed in the "Options/Configuration" menu (chapter 15). However, this order does not determine the pipetting sequence.



By clicking on the tab with the current volume (in the example at left, for example, "20 µl") you can observe how the measurement values are recorded. When the first measurement operation for the first volume is finished, pipette the same volume again and then start the second measurement on the balance. In the example at left, all measurements for the first volume are already finished.

The green diamond of the "Status" tab indicates that all of the measurements so far were within the tolerances. If a measurement is outside the tolerances, the diamond is displayed red.

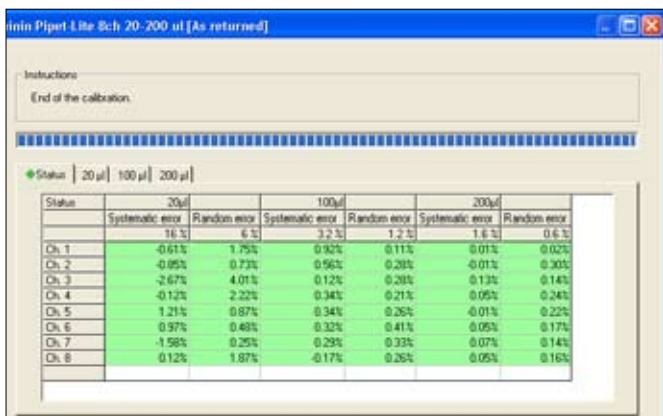
Perform all the remaining measurements for the first volume. When they are all finished, a prompt appears in the "Instructions" section to change the volume (see the example at left). Set the second volume on the pipette and then perform all the necessary measurements.

Provided that there are sufficient values (at least 2 measured values per pipette channel), you can see the result of the calibration at any time by clicking on the "Status" tab.

In the example at left, all measurements for all volumes have been completed and all the measured values are within the tolerances. Values outside the tolerances are marked red as follows:

- **light red:** the value exceeds the tolerance by 100 % – 200 %
- **dark red:** the value exceeds the tolerance by 200 % or more.

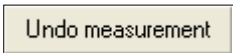
The completion of all measurements is confirmed in the "Instructions" section of the window.




 Notice

Entering a comment

You may append a comment to each calibration. This text will appear on the calibration report. To add a comment click on the **“Notice”** button **before** terminating the calibration procedure with the **“Finish”** button. **Note:** Instead of entering your own text you may select a preset comment from the list in the lower part of the window (in the **“Options/Calibration Setup”** menu you may define the comments you want to appear in the list, see chapter 15).


 Undo measurement

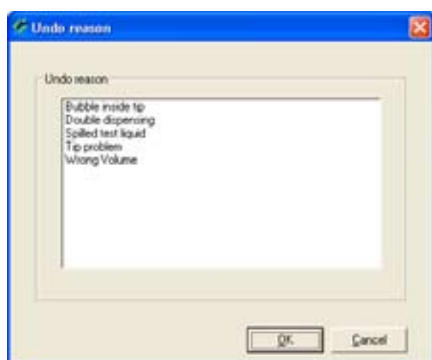
Deleting faulty measurement values

If you think you made a mistake in a measurement operation (implausible values), click on the tab of the respective volume and then mark the column with the faulty measurement values. Click on the **“Undo measurement”** button.

The window shown at left appears and you have to select the appropriate cause for deleting the values. After confirmation, the values are deleted and you can perform the respective measurement operation again.

Notes

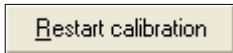
- The admissible number of deletions per calibration can be set in the **“Options/Configuration”** menu (chapter 15).
- The list of causes for the deletion of measured values can be edited in the **“Options/Calibration Setup”** menu (chapter 15).



 Cancel


Aborting the calibration

You can abort the calibration operation at any time and repeat calibration at a later date. **Note:** With pipettes using a multi-step calibration mode (inspection, status check, fault correction, see chapters 9.3 and 9.4) the actual status is saved and you can carry out the steps that were not performed at some later time.


 Restart calibration

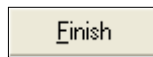
Restarting the calibration

If several measurement values are implausible or if you have used inappropriate calibration parameters, you can repeat the entire calibration procedure by clicking on the **“Restart calibration”** button. There will be a confirmation dialog stating that all measured values captured so far will be lost. After confirming the message with **“Yes”** the window for setting up the calibration parameters will be opened again.


 View report

Displaying the report

When all measurement have been completed, you can view the report of the calibration. To view the report, click on the **“View report”** button. You will find information about the reports in chapter 10. **Note:** The report can be displayed only after the measured values have been saved. That is why Calibry asks you whether you wish to save the values and close the window after clicking on the **“View report”** button.



Completing the calibration

Click on the "**Finish**" button to complete the calibration (this button only becomes accessible when the entire calibration process is complete.) The pipette is deleted from the "Tasks" list and the calibration dialog is closed.

If the **calibration was not successful** (values outside the tolerances), you will be asked whether you want to remove the pipette from Calibry:

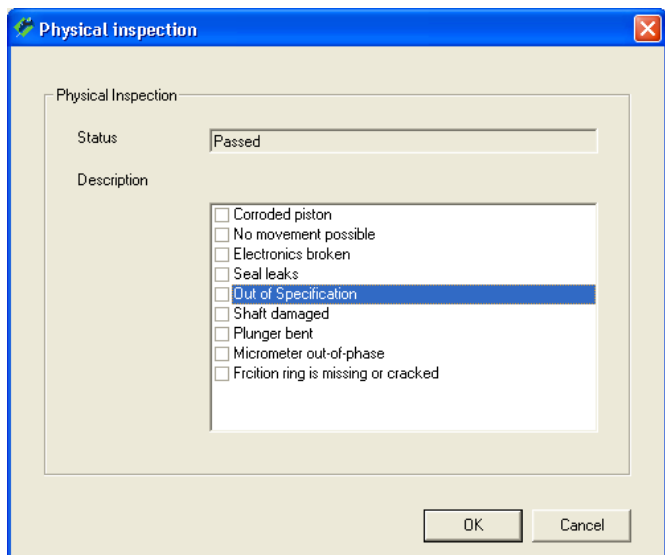
- If you answer with "No", the pipette remains in Calibry and can be calibrated again later.
- If you answer with "Yes", the pipette is classified as being no longer capable of calibration (status "Out of order") and is **permanently** removed from both the pipette list and the "Tasks" list of Calibry.

Be careful with this option because there is no way of returning the pipette to Calibry after it has been removed except for a new definition.

9.3 Calibrating a multi-channel pipette with inspection and fault correction

With this calibration method (“Calibration with inspection”) the pipette is inspected for faults before the actual calibration and any necessary measures for fault correction are performed. For this purpose, while the calibration is being performed additional windows are opened in which you can make inputs for inspection and fault correction. These inputs may also be printed on the reports.

Note: In this chapter only those steps are described in detail which are typical for this calibration method. Steps which are identical to those of a simple calibration (chapter 9.2) are not described again.



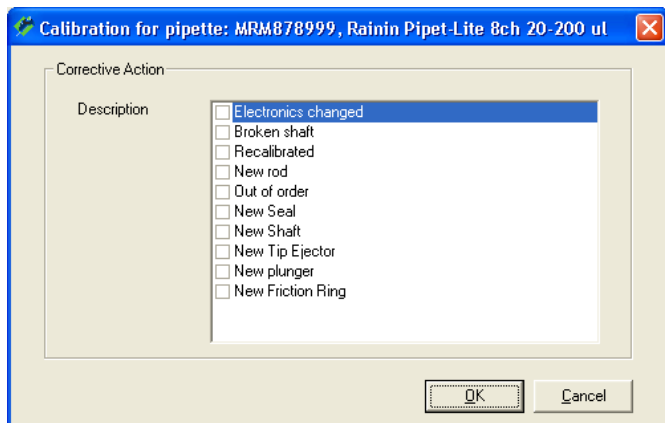
When the calibration dialog is started (chapter 9.1) the window “**Physical inspection**” for checking the pipette for possible faults first opens. The list installed at the factory contains a selection of the most common faults.

Note: In the “Options/Calibration Setup” menu you can edit the list of the most common faults or, if desired, translate them into your own language (see chapter 15).

Inspect the pipette and mark any faults in the list of detected faults. As soon as one fault is marked, the status changes to “Failed”.

Click on “OK” to terminate the inspection.

Note: If a fault was found and marked in the list, a wrench symbol is displayed in the “Status” column of the “Tasks” list to indicate that a repair is necessary (chapter 8.1)

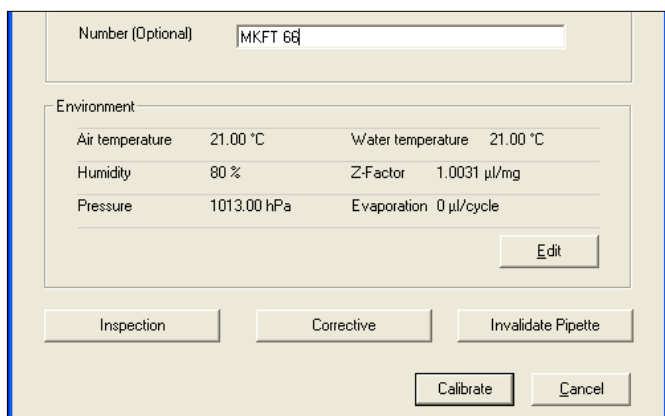


If you a fault was detected upon inspection and marked it in the list, another window appears where you can mark the **measures taken to correct the fault(s)**. The list installed at the factory contains a selection of the most common measures.

Note: In the “Options/Calibration Setup” menu you can edit the list of the most common corrective measures or, if desired, translate them into your own language (see chapter 15).

Mark the measures taken in the list.

Click on “OK” to save the inputs and close the window.



The next window is identical to the window for a simple calibration (chapter 9.1) except that it contains two additional buttons.

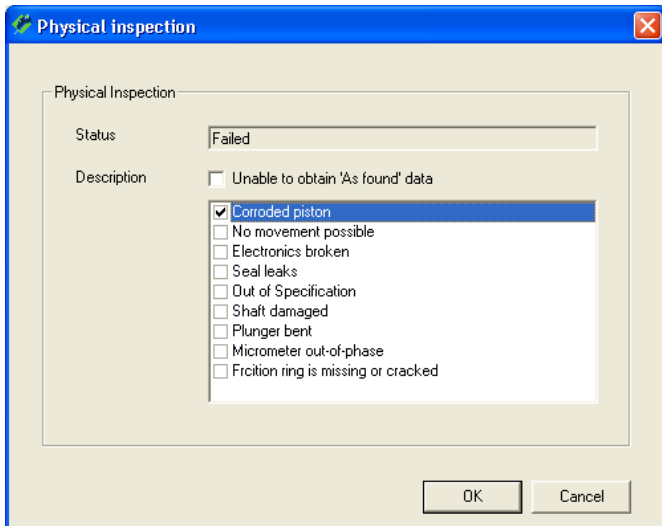
With “**Inspection**” and “**Corrective**” you can, if necessary, re-open the previous windows and edit the list of faults or measures for fault correction.

The “Calibrate” button allows you to start the calibration. The calibration procedure is identical to that for a simple calibration (chapter 9.1).

9.4 Calibrating a multi-channel pipette with inspection, status check, and fault correction

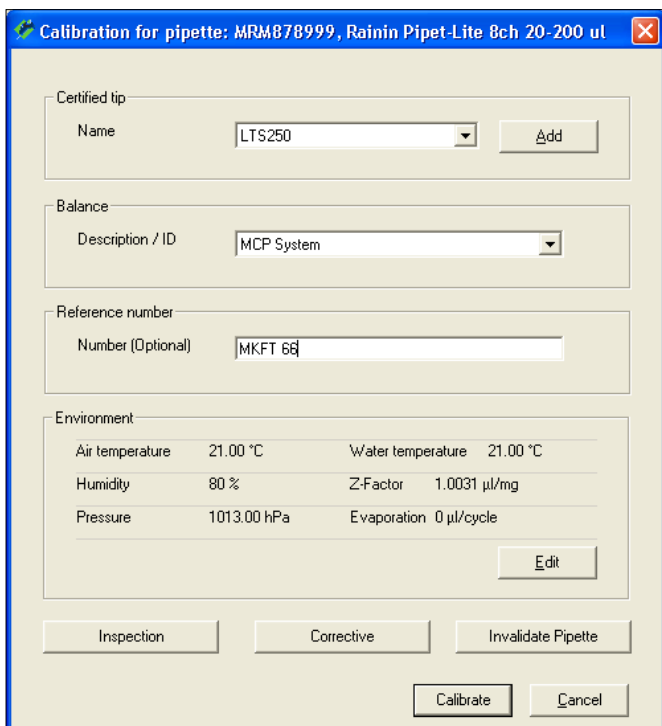
With this calibration method ("Calibration with inspection and 'As found' data") the pipette is first inspected for faults. After this, a status check is performed ("As found"). The status check takes the form of an abbreviated measurement by means of which the accuracy of the pipette is determined **before** any necessary repair measures are performed. After the status has been checked, any necessary fault correction measures are performed. Finally, the calibration itself provides information about the accuracy of the pipette **after** the fault correction measures have been performed.

Note: In this chapter only those steps are described in detail which are typical for this calibration method. Steps which are identical to those of the calibration method already described (chapters 9.2 and 9.3) are not described in detail again.

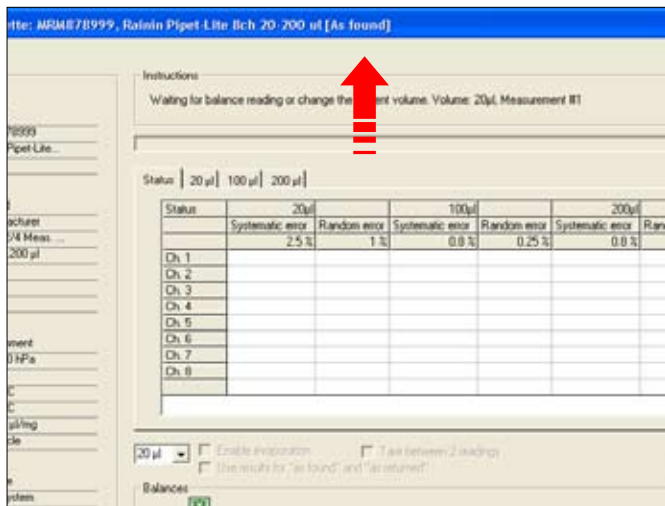


When the calibration dialog (chapter 9.1) is started, the "Physical inspection" window opens to **check the pipette for possible faults** (chapter 9.3). Inspect the pipette and mark in the list any faults you find. Click on "OK" to finish the inspection.

Note: If the inspection reveals that no status check ("As found") can be performed due to the defects, you may check the box **"Unable to obtain 'As found data'"** (this checkbox appears only if at least one defect has been selected). This causes the application to skip the status check ("As found") and pass directly to the window for selecting the measures taken to correct the fault.



The next window is identical to the window for a calibration with inspection and fault correction as described in the previous chapter. Make the necessary inputs (chapters 9.1 and 9.2) and then click on **"Calibrate"**.

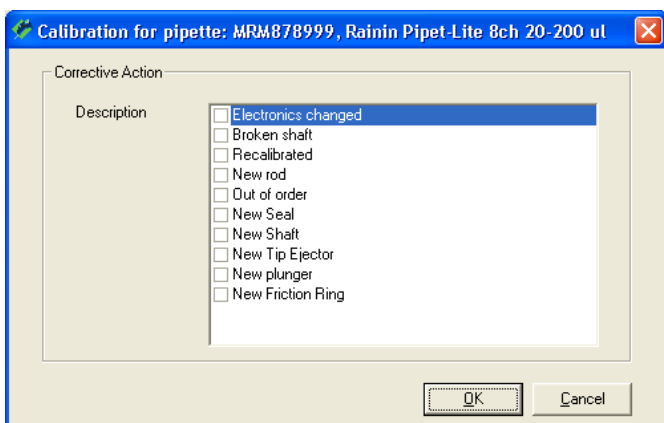


Finish

If the initial inspection of the pipette revealed some faults and these were marked in the list, it is mandatory to carry out a **status check** ("As Found"). Basically, this is similar to the normal calibration but the values which are determined are used only for the status check. In contrast to the real calibration, the status check usually involves a reduced number of measurements. The number of measurements for the status check can be specified when defining the test method (chapter 7.2).

Note: If **no faults** were found upon the initial inspection of the pipette, Calibry skips the status check and opens the calibration dialog instead (see below).

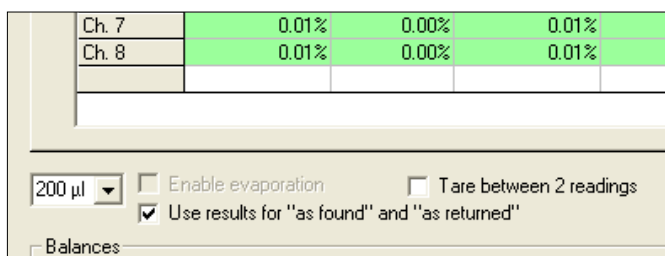
Perform all the measurements necessary for the status check. Conclusion of all measurements is confirmed in the "Instructions" section of the window. Click on the **"Finish"** button to conclude the status check.



If inspection of the pipette ("Physical Inspection") at the very beginning of the calibration procedure revealed faults and these were marked in the list, the "Corrective action" window opens for **input of fault correction measures which were performed** (otherwise the calibration dialog opens immediately).

In the list, mark the fault correction measures which were performed.

Click on "OK" to save the inputs and close the window.

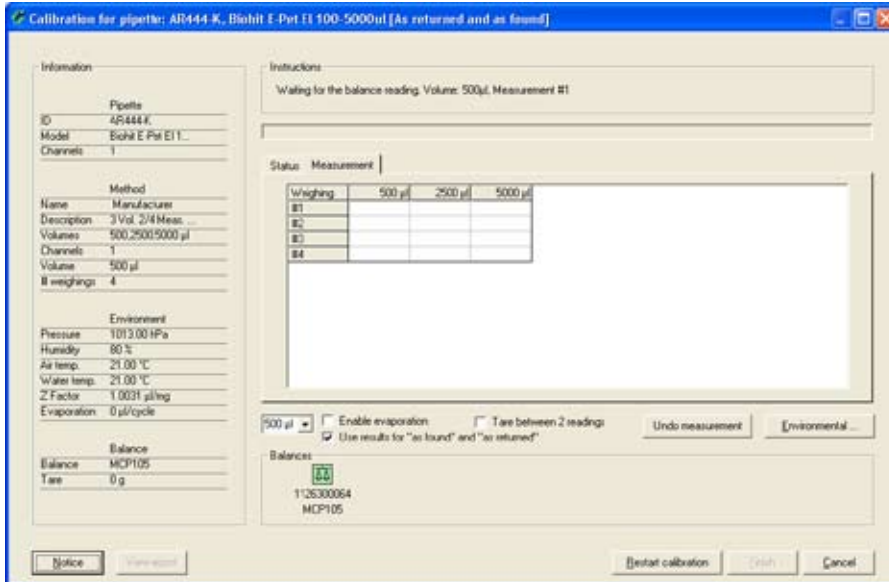


The **calibration dialog** appears. The calibration procedure is identical to that for a simple calibration (chapter 9.1). When all the measurements have been performed, click on the **"Finish"** button to complete the calibration.

Note: If the checkbox **"Use results for 'as found' and 'as returned'"** is available in the calibration dialog, **no faults** were found upon the initial inspection of the pipette, and for this reason no status check was carried out (see above). If the box is checked, the values measured upon calibration also apply to the status check (that was not carried out). However, you still may carry out a separate status check (e.g. in case you need separate reports for the status check and the calibration). To accomplish this, uncheck the box. This tells Calibry to carry out a status check first.

9.5 Instructions for calibrating 1-channel pipettes

The procedure for calibrating 1-channel pipettes is identical to that for **multi-channel** pipettes (chapters 9.1 to 9.4) except that the window of the calibration dialog has a different appearance. The differences in the calibration dialog for 1-channel pipettes are described below.



At the left of the window you will find information about the pipette, testing method, environmental parameters, and the balance (the current "Tare" value is sent from the balance).

Below the result section of the window you can select the volume you wish to calibrate.

In the same location there are two additional settings:

"Enable evaporation"

If this option is activated, the measurement values are corrected for the evaporation value which you specified in the environmental parameters ("Environment" → "Evaporation").

"Tare between 2 readings"

Activate this option if you wish to tare the balance (manually) after each measurement.

You can see the result of the calibration at any time by clicking on "**Status**" tab. ("Random error" and "Systematic error" for each volume).

Clicking on the "**Measurement**" tab displays all measured values for each volume. If this view is active while calibration is in progress, you can watch how the single values are gathered.

The checkbox "**Use results for 'as found' and 'as returned'**" is displayed only with the "Calibration with inspection and 'As found' data" mode and if no defects were found upon the initial inspection of the pipette. In this case you do not need to carry out a status check but you may still do so by unchecking the box (also see notes in chapter 9.4).

10 Calibration Reports

Calibry produces a detailed report for each calibration that has been completed, including all data that is relevant to the calibration and the ambient conditions.

The screenshot shows the Calibry software interface. A red arrow points to the "Reports" tab in the navigation bar. The main window displays a table of calibration reports. The table has the following columns: Report Date, Pipette SN, Type, Method, Printed, Balance Type, User Name, and Status. The Status column contains icons representing different calibration states (e.g., FU, GR, RU).

Report Date	Pipette SN	Type	Method	Printed	Balance Type	User Name	Status
07.05.2008 13:19:02	AR444-K	Biohit E-Pet E1 100-5000ul	Manufacturer	No			FU GR RU
07.05.2008 13:18:09	AR444-K	Biohit E-Pet E1 100-5000ul	Manufacturer	No		SPI	FU GR RU
25.04.2008 18:16:52	TEP1	TEPIP 8ch 20-200 ul	testo	No			FU GR RU
25.04.2008 15:30:40	TEP1	TEPIP 8ch 20-200 ul	Tepip_Calib_Only	No		SPI	RU
25.04.2008 15:27:51	TEP1	TEPIP 8ch 20-200 ul	Tepip_Calib_Only_1	No		SPI	FU GR RU
25.04.2008 15:23:19	TEP1	TEPIP 8ch 20-200 ul	Tepip_Calib_Only	No		SPI	RU
25.04.2008 14:59:33	42467892	Rainin Pipet-Lite 8ch 20-200 ul	Rainin Pipet-Lite 8ch 20-200	No		SPI	FU GR RU
25.04.2008 14:57:53	9954324	Rainin Pipet-Lite 8ch 20-200 ul	Rainin Pipet-Lite 8ch 20-200	No		SPI	RU
25.04.2008 13:45:12	42467892	Rainin Pipet-Lite 8ch 20-200 ul	Rainin Pipet-Lite 8ch 20-200	No		SPI	RU
23.04.2008 14:18:47	42467892	Rainin Pipet-Lite 8ch 20-200 ul	Rainin Pipet-Lite 8ch 20-200	No		SPI	FU GR RU
17.04.2008 19:46:48	EF222-4	Sorox 8ch 200 ul-2ml	ISO type A Multi 8ch. 2 ml	No		SPI	FU GR RU
16.04.2008 19:10:57	65577888844	Rainin EDP-PLUS EP-10	ISO type A 1x 10 µl	No		SPI	RU
31.01.2007 13:42:38	J0206207B	Rainin Pipet-Plus R20	ISO type A 20 µl, w/P.I.+C.A.	No		SPI	FU GR RU
23.01.2007 18:33:24	J0206207B	Rainin Pipet-Plus R20	ISO type A 20 µl w/P.I.+C.A.	Yes		SPI	RU
23.01.2007 17:57:18	76564363	Rainin Pipet-Lite 8ch 2-20 ul	ISO 8ch 2-20 ul	Yes		SPI	FU GR RU
07.03.2006 19:33:38	42467892	Rainin Pipet-Lite 8ch 20-200 ul	Rainin Pipet-Lite 8ch 20-200	No		SPI	FU GR RU
07.03.2006 19:31:31	42467892	Rainin Pipet-Lite 8ch 20-200 ul	Rainin Pipet-Lite 8ch 20-200	No		SPI	FU GR RU
02.03.2006 19:16:27	42467892	Rainin Pipet-Lite 8ch 20-200 ul	Rainin Pipet-Lite 8ch 20-200	No		SPI	RU
02.03.2006 19:14:44	42467892	Rainin Pipet-Lite 8ch 20-200 ul	Rainin Pipet-Lite 8ch 20-200	No		SPI	RU
02.03.2006 18:05:36	42467892	Rainin Pipet-Lite 8ch 20-200 ul	Rainin Pipet-Lite 8ch 20-200	Yes		SPI	FU GR RU
01.03.2006 17:54:38	J0206207B	Rainin Pipet-Plus R20	ISO type A 20 µl	No	MCP105	SPI	RU
01.03.2006 16:03:20	42467892	Rainin Pipet-Lite 8ch 20-200 ul	Rainin Pipet-Lite 8ch 20-200	No		SPI	FU GR RU
01.03.2006 13:25:18	AS444555	Rainin Pipet-Lite 8ch 20-200 ul	ISO type A Multi 8ch. 200 µl	No		SPI	RU
01.03.2006 13:21:16	42467892	Rainin Pipet-Lite 8ch 20-200 ul	ISO type A Multi 8ch. 200 µl	No		SPI	RU
01.03.2006 13:20:21	42467892	Rainin Pipet-Lite 8ch 20-200 ul	ISO type A Multi 8ch. 200 µl	No		SPI	RU
10.02.2006 17:08:14	J0206207B	Rainin Pipet-Plus R20	ISO type A 20 µl	No	XP56	O. Chatelain	RU
10.02.2006 12:38:00	1	Biohit Proline 1ch 10-100 ul	Biohit Proline 1ch 10-100 ul	No	MCP105	SPI	RU
10.02.2006 12:20:55	a0500089a	Rainin Pipet-Lite 8ch 20-200 ul	ISO type A Multi 8ch. 200 µl	No	MCP105	O. Chatelain	RU
10.02.2006 11:46:45	a0500089a	Rainin Pipet-Lite 8ch 20-200 ul	ISO type A Multi 8ch. 200 µl	No	MCP105	SPI	RU
03.02.2006 13:14:12	1	Biohit Proline 1ch 10-100 ul	ISO type D1 100 µl	No		SPI	RU
02.02.2006 15:37:02	76564363	Rainin Pipet-Lite 8ch 2-20 ul	ISO 8ch 2-20 ul	Yes		O. Chatelain	FU GR RU
02.02.2006 07:54:05	1	Biohit Proline 1ch 10-100 ul	ISO type D1 100 µl	No		O. Chatelain	FU GR RU
01.02.2006 14:48:57	1	Biohit Proline 1ch 10-100 ul	ISO type D1 100 µl	No		O. Chatelain	FU GR RU

Click on the **"Reports"** tab to open the calibration report menu.

Most columns of the report list contain information, which you are already familiar with (test method, types of pipettes and pipette serial number, etc.). The two columns "Report Date" and "Printed" provide information on the creation date of the relevant report and whether it has already been printed out.

Note: You can change the appearance of the report list to suit your own specific requirements. These changes are made in the "Options/Viewing Options" menu and are detailed in chapter 15.3.

10.1 The contents of the reports

View

Highlight the desired report in the report list and then click on the **View** button (or simply double click on the desired report in the list). The selected report appears on the display. On the next page you will find a sample report providing the following data:

- 1 Title of the report (can be changed in the "Options/Configuration" menu, chapter 15)
- 2 Reference number, if specified upon calibration (chapter 9.2)
- 3 Information about the company, the pipette and the test method that was used
- 4 Ambient conditions
- 5 Information about the balance
- 6 Result of the pipette fault inspection and measures taken to remedy the problems encountered (for simple calibrations this information is not available)
- 7 Overview of the calibration results. It displays the "Mean" value, the "Systematic Error" and the "Random Error" (as an absolute and relative value) and the "Measurement uncertainty" (according to ISO 8655-6:2002, Annex B) for all pipette channels and all volumes that have been tested. The detailed values for each channel and volume can be found later on in the report
- 8 The "Status" item indicates whether or not the pipette has passed the calibration
- 9 Causes for deletion of measured values (only if measured values have been deleted upon calibration)
- 10 Calibration date
- 11 Next due date for calibration (if available)
- 12 Comment entered during calibration (if any)
- 13 Graphical overview of the measurement results ("Systematic error") for each channel and volume. The blue lines show the nominal values, the dashed black lines are the tolerance limits. The dots mark the status of the results for each channel and volume in relation to the nominal value and the tolerances. Below the graph, the "Status" item indicates whether or not the respective channel has passed calibration
- 14 Spare line for signing the report, showing the name of the user that has carried out the calibration
- 15 Spare line showing the name of the user who has to counter-sign the report (assuming the counter-signing feature is active, see chapter 10.2)
- 16 Identification number of the report. This number is automatically generated by Calibry and is used to clearly identify every single report.

With calibrations including a status check, the first page of the report shows the results of the status check ("As found") while the results of the real calibration appear on the second page ("As returned"). The remaining pages of the report provide separate details of the measurement results for each pipette channel along with a graphical representation. For calibrations including a status check there are additional pages holding the results of the status check for each pipette channel.

1 **2**
CALIBRATION REPORT MC222

SERIAL #	76564363	3	PIPETTE MODEL	Rainin Pipet-Lite 8ch 2-20 ul
COMPANY/INSTITUTION	Calibration User		NAME	Fritz Cat
METHOD	Rainin Pipet-Lite 8ch 2-20 ul		METHOD DESCRIPTION	3Vol. 4Meas. 20 10 2

CONDITIONS	BALANCE
TEMPERATURE [°C]	21.00 °C
HUMIDITY [%] 4	80 %
ATM. PRESSURE [kPa]	1013.00 hPa
Z-FACTOR	1.0031 µl/mg
MODEL	MCP105
SENSITIVITY [g] 5	0.000001
TIPS USED	LTS250

6 **7**

INSPECTION TEST	INSPECTION TEST
CORRECTIVE ACTION	FAILED: Friction ring is missing or cracked New Friction Ring

7 **8**

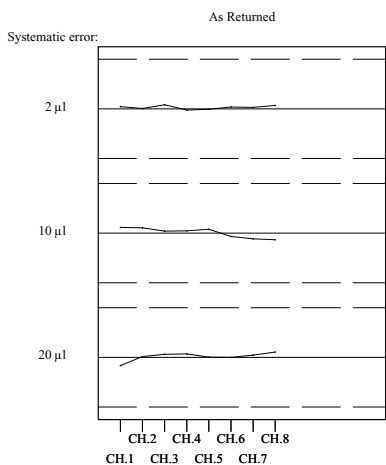
Volume	Stat.	Limits	Ch. 1	Ch. 2	Ch. 3	Ch. 4	Ch. 5	Ch. 6	Ch. 7	Ch. 8
2 µl	Mean [µl]		1.993182	1.998864	1.987500	2.003409	2.001136	1.994318	1.995455	1.989773
	Systematic Error [µl]	± 0.150000	-0.006818	-0.001136	-0.012500	0.003409	0.001136	-0.005682	-0.004545	-0.010227
	Systematic Error [%]	± 7.50	-0.34	-0.06	-0.62	0.17	0.06	-0.28	-0.23	-0.51
	Random Error [µl]	0.040000	0.006428	0.004352	0.007763	0.009371	0.014071	0.013573	0.011439	0.004352
	Random Error [%]	2.00	0.32	0.22	0.39	0.47	0.70	0.68	0.57	0.22
Uncertainty meas. [µl]			0.019675	0.009840	0.028026	0.022150	0.029279	0.032828	0.027424	0.018931
RI ✓	STATUS		RI ✓	RI ✓	RI ✓	RI ✓	RI ✓	RI ✓	RI ✓	RI ✓
10 µl	Mean [µl]		9.982955	9.984091	9.994318	9.993182	9.988636	10.010227	10.017045	10.020455
	Systematic Error [µl]	± 0.150000	-0.017045	-0.015909	-0.005682	-0.006818	-0.011364	0.010227	0.017045	0.020455
	Systematic Error [%]	± 1.50	-0.17	-0.16	-0.06	-0.07	-0.11	0.10	0.17	0.20
	Random Error [µl]	0.050000	0.004352	0.017799	0.006818	0.003711	0.015746	0.002273	0.004352	0.000000
	Random Error [%]	0.50	0.04	0.18	0.07	0.04	0.16	0.02	0.04	0.00
Uncertainty meas. [µl]			0.025749	0.051507	0.019318	0.014241	0.042855	0.014773	0.025749	0.020455
RI ✓	STATUS		RI ✓	RI ✓	RI ✓	RI ✓	RI ✓	RI ✓	RI ✓	RI ✓
20 µl	Mean [µl]		20.033333	19.996970	19.987879	19.986364	19.998485	20.000000	19.990909	19.978788
	Systematic Error [µl]	± 0.200000	0.033333	-0.003030	-0.012121	-0.013636	-0.001515	0.000000	-0.009091	-0.021212
	Systematic Error [%]	± 1.00	0.17	-0.02	-0.06	-0.07	-0.01	0.00	-0.05	-0.11
	Random Error [µl]	0.040000	0.000000	0.011065	0.006061	0.003030	0.003030	0.003499	0.008571	0.000000
	Random Error [%]	0.20	0.00	0.06	0.03	0.02	0.02	0.02	0.04	0.00
Uncertainty meas. [µl]			0.033333	0.025161	0.024242	0.019697	0.007576	0.006998	0.026233	0.021212
RI ✓	STATUS		RI ✓	RI ✓	RI ✓	RI ✓	RI ✓	RI ✓	RI ✓	RI ✓

STATUS: PASSED **8**

Reason for undo **9** None **10** **11**

DATE: 13.05.2008 13:20:53 NEXT DUE: Unknown

12 Notice Customer says pipette requires minor repair. Repair performed by A. Smith - pipette seems to be OK after repair.



Status **RI** ✓ **RI** ✓ **RI** ✓ **RI** ✓ **RI** ✓ **RI** ✓ **RI** ✓ **RI** ✓

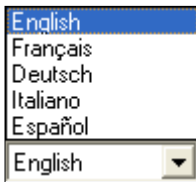
Accepted by Devenport

Performed by SPI

16 Certificate # 0606100160-4 R8

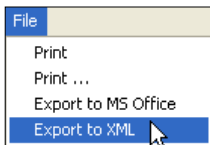
10.2 Report options

When a report is displayed, you can use the buttons at the bottom of your screen to activate the following options:



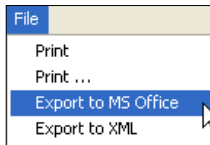
Selecting the report language

Select the language that is to be used to display or print out the report. The languages available are: English, French, German, Italian and Spanish. For other languages please contact METTLER TOLEDO.



Exporting a report

The "File" menu lets you export the report in **XML format** (with no graphical representations). Calibry writes the contents of the report that is currently displayed to a XML file (default name "Report.xml") and stores it in a directory of your choice. In addition, you may export data for further processing in **Microsoft Office® applications**. Further information on exporting data in XML or MS Office format is found in chapter 16.



Note: If the counter-signing option is active, the export options will be available only after a second authorized user has counter-signed the report (see below).



Printing out a report

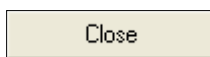
Use this button to print out a report. **Note:** If the counter-signing option is active, this button will be available only after a second authorized user has counter-signed the report (see below).



Depending on the number of pipette channels and the test method selected, the printout may be very extensive. For this reason there is a supplementary window that lets you specify the contents of the report to be printed.

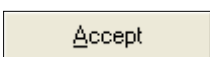
In the left part of the window you may select whether you just wish to print the results of the status check ("As found only"), the results of the real calibration ("As returned only"), or both ("As found and as returned"). The two checkboxes in the right-hand part of the window determine the amount of details to be printed. With these options checked, Calibry will print the measured values of each channel on a separate page, for the status check ("As found") and/or the calibration ("As returned"), in addition to the result overview.

Click on the button "OK" to have the report printed.



Closing the report window

Use this button to close the current report window. The report list is then displayed.



Counter-signing a report

This button appears only if the counter-signing of reports has been activated in the "Options/Configuration/Report" menu (chapter 15). In this case, the report can be printed out or exported only after a second user with the appropriate rights (chapter 12) has counter-signed the report by pressing the "Accept" button.

Report settings

The "Options/Configuration/Report" menu (chapter 15.2) provides a variety of options for customizing the design of reports (contents, fonts, logos, etc.). **The user is responsible for the layout of the report.**

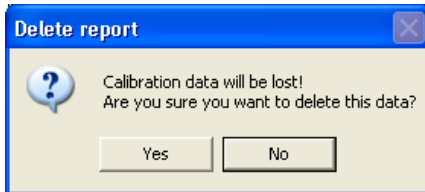
10.3 Deleting reports

There are two buttons at the bottom of the report list that can be used to delete reports:



Deleting a single report

Highlight the report that is to be deleted from the list and click on the "Delete" button.



Before the report is deleted, the following prompt appears. If you answer yes to the prompt, the report is deleted.

Note: When deleting reports, you are also deleting any calibration results that are included in the report! Make sure that you really do not need this data or that you have already exported or printed it out.



Deleting all reports

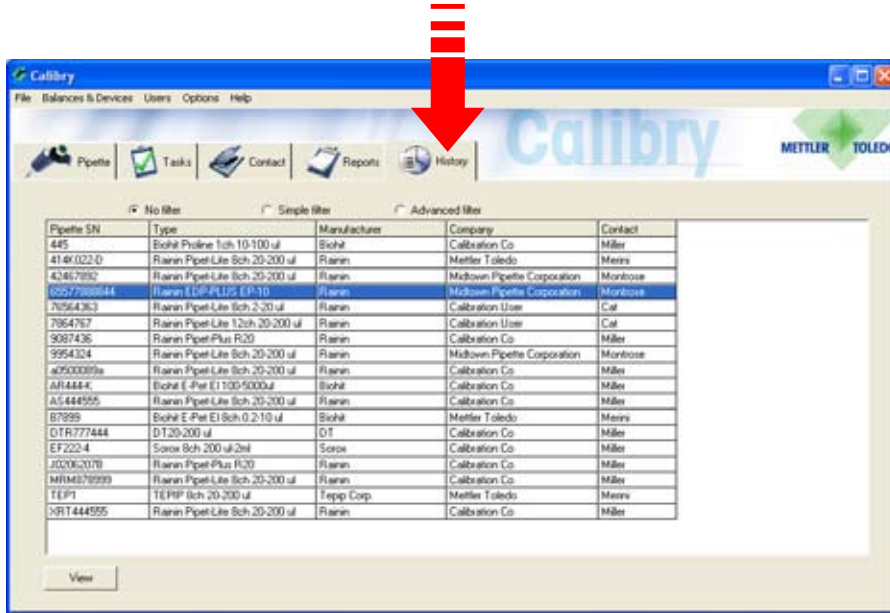
Use this button to delete several reports from the list. Before the reports are deleted, the same prompt appears as for when you delete individual reports.



Note: When you delete the reports, you also lose the results of **all** calibrations that have been carried out! Make sure that you really do not need the data anymore, or that you have already exported or printed it out.

11 Pipette History

Calibry runs a so-called “History” for each pipette with the results of all calibrations that have been carried out. **Entries in the history cannot be changed or deleted.**



Click on the “History” tab to open the history menu.

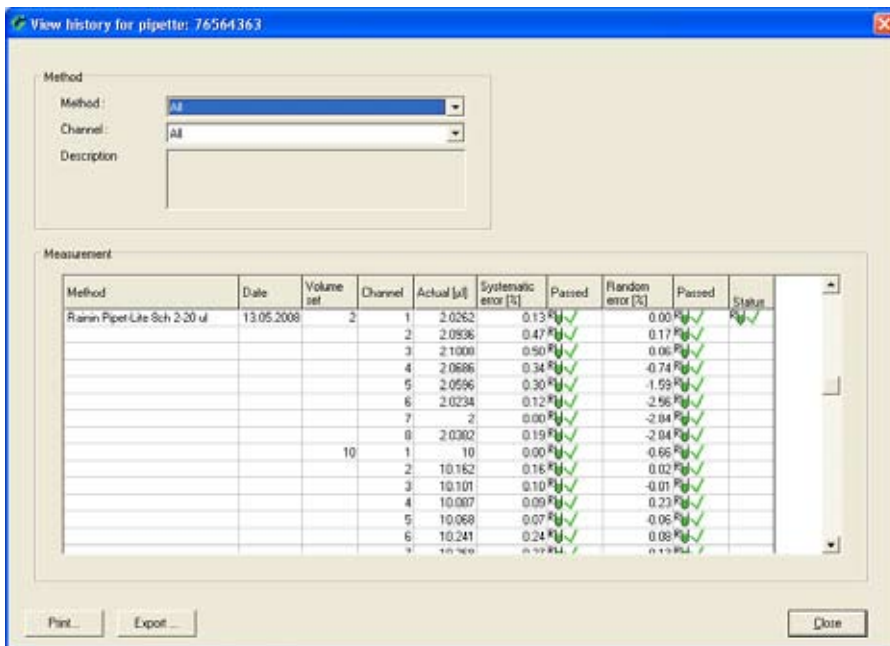
The columns of the history list contain information, which you are already familiar with (pipette serial number and type of pipette, contact, etc.).

Note: You can change the appearance of the history list to suit your own specific requirements. These changes are made in the “Options/Viewing Options” menu and are detailed in chapter 15.3.



Highlight the pipette in the list for which you want to display the history and click on the “View” button (or simply double click on the pipette in the list).

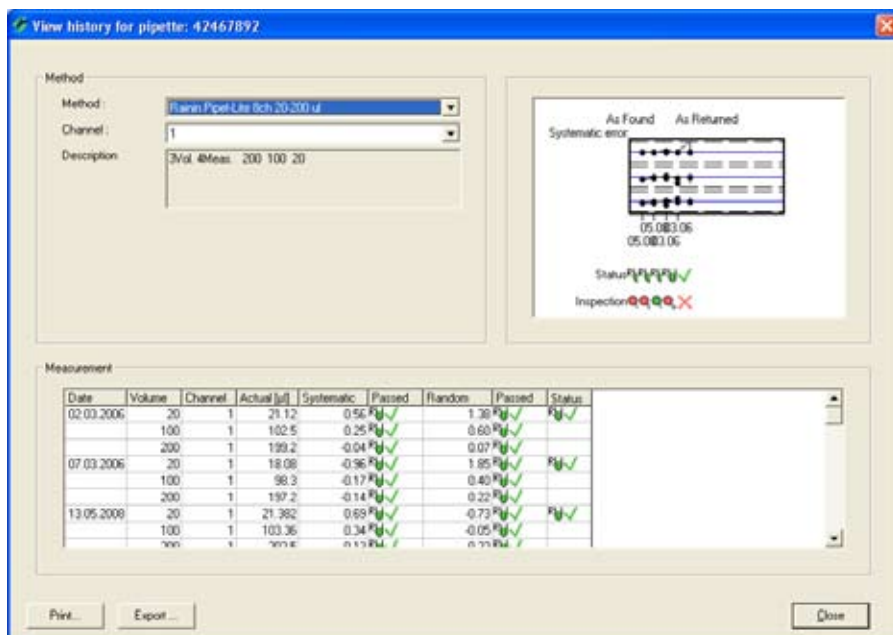
The history of the selected pipette appears on the display.



Once the history of a particular pipette has been opened, the window initially shows the results of all calibrations done with all test methods for all channels.

If you just wish to see the results of calibrations done with a particular test method, you may select the respective method from the “Method” drop down menu.

You may use the “Channel” dropdown menu to display the results of a particular channel.



If you select a **particular test method** as well as a **single channel**, the calibration results for the selected channel will additionally be represented as a **graph**.

The blue lines show the nominal values, the dashed black lines are the tolerance limits. The dots mark the status of the results in relation to the nominal value and the tolerances. Below the graph, the "Status" item indicates whether or not the respective channel has passed the status check (if available) and the calibration.

If the pipette has been inspected for faults, the respective result is displayed as well ("Inspection").

Note: If you select "All" from the "Channel" and/or "Method" dropdown menu, Calibry quits the graphical view and displays the results as text only.

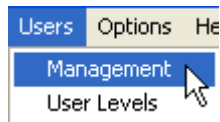
Print ...

Export

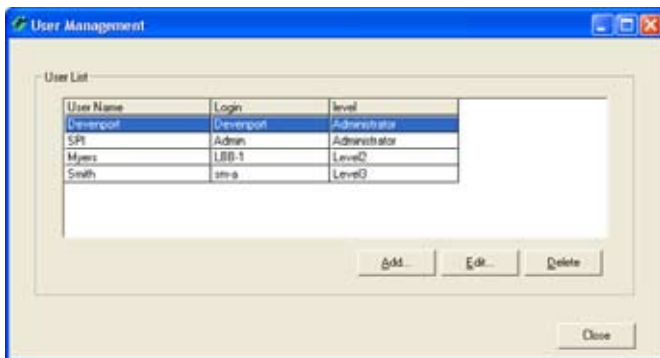
Use the **Print** and **Export** buttons to print out the history or export it as a text file (with no graph), whereby **only data from the currently selected test method and pipette channel** is sent to the printer or file.

12 User Management

In Calibry, you can set up different users for which different authorizations can be determined. When Calibry is installed (chapter 2), a user is automatically created with administrator rights. Login data is automatically copied from the active Windows user account. After the program has started, Calibry checks which user is logged onto Windows and whether there is already an entry for this user in Calibry. If this is the case, the program starts up, using the rights for this user. If, after the program has started, Calibry does not find an entry in its user list for the user logged onto Windows, then the program start is aborted.



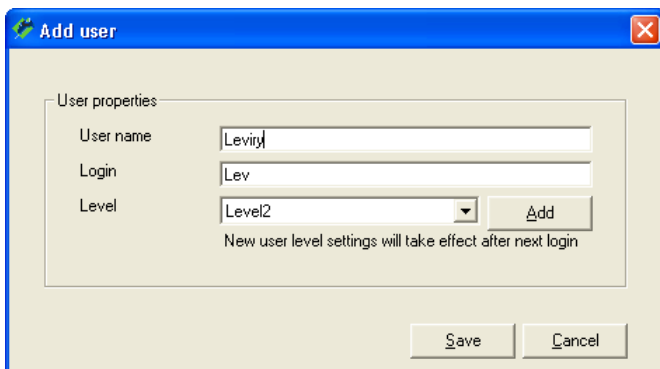
Click on "**Users/Management**" to get access to the user management menu.



Several users have already been defined in the example shown here (in addition to the user who is automatically created by Calibry during installation). The list contains information on names, login (corresponds to the user account in Windows) and the level of authorization of each user.

12.1 Defining a new user

To define a new user, click on the "**Add**" button on the bottom right hand-side of the "User Management" main window. A screen appears which is used to define the user.



Entering data for the new user:

User name: Freely selectable user name. Use real names as these will be used in calibration reports and in exported data.

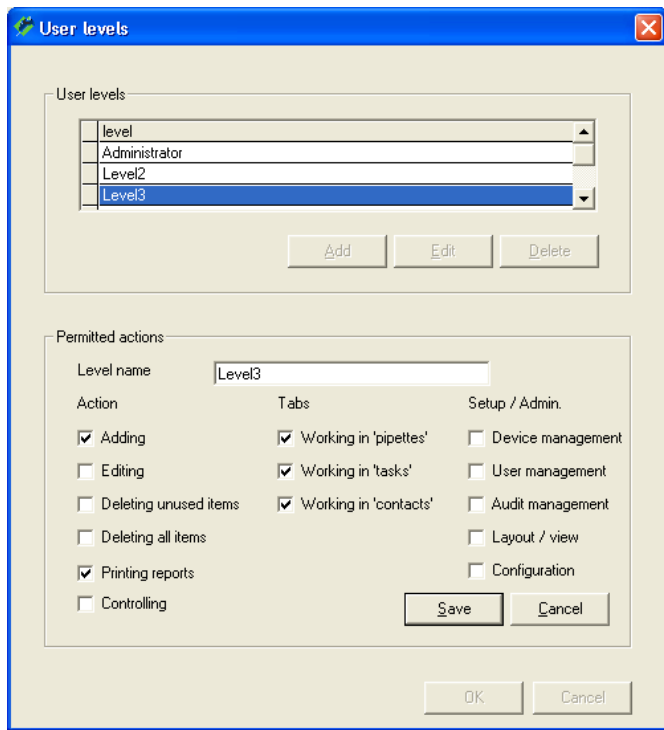
Login: Name of the relevant user account in Windows. **Enter the exact name, as it is found in Windows!** When the program starts, Calibry checks the active Windows user account and if both designations do not match, the program start is aborted!

Level: Select the levels of authorization for the user from the list. If none of the existing levels of authorization are relevant, you can define a new one by clicking on the "Add" button, as per the information given in the next section.

As soon as you have entered all of the data, click on the "**Save**" button to save the new user.

12.2 Creating, editing and deleting levels of authorization

The levels of authorization ("Levels") determine which actions a user is allowed to carry out. To create, edit or delete a level of authorization, click on the "Add" button in the "Add user" window (see above).



Creating or editing a level of authorization

To create a new level of authorization, click on the "Add" button.

To edit an existing level of authorization, highlight it in the list and then click on the "Edit" button.

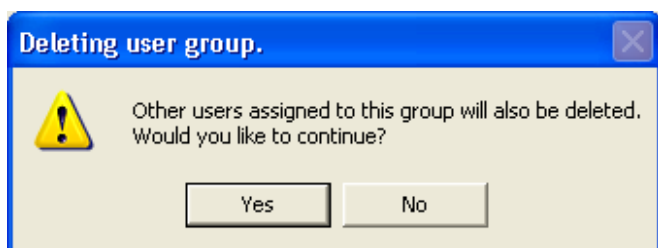
The settings can then be determined or changed. Ensure that changes apply to **all users**, who work with this level of authorization! **Note:** The "Administrator" level of authorization cannot be modified.

In the "Action" column, you can determine which actions are permissible with this level of authorization: "Adding" and "Editing" activate or deactivate the respective buttons in the menus. "Deleting unused items" determines whether data which is no longer used, can be deleted. "Deleting all items" allows (or prohibits) the unrestricted deletion of data records. "Printing reports" determines whether calibration reports can be printed. "Controlling" grants (or denies) the permission to counter-sign calibration reports.

In the "Tabs" column you can determine which menus/lists are to be accessible.

In the "Setup / Admin." column you can determine which system functions are to be accessible using this level of authorization. These system functions are found in the menu line of Calibry.

Once all rights have been determined, click on the "Save" button to save the level of authorization.



Deleting a level of authorization

To delete an existing level of authorization, highlight it in the list and then click on the "Delete" button.

The following prompt appears.



Caution: If you answer yes to the prompt, **all users** are deleted, who are assigned to the levels of authorization that are to be deleted!

12.3 Changing users

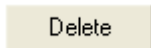


In the user list, highlight the user, for which the data is to be changed and then click on the "**Edit**" button. You can now edit "User name", "Login" and "Level" in the same way as you would when you define a new user (chapter 12.1).

Note: The level of authorization ("Level") cannot be changed for the active user and administrator.

Once all changes have been completed, click on "**Save**" to save the modified user data.

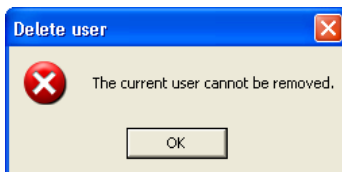
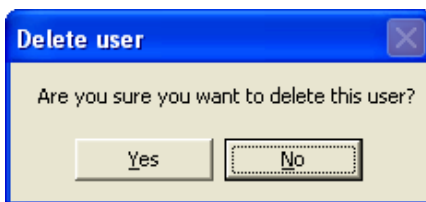
12.4 Deleting users



In the user list, highlight the user that is to be deleted and then click on the "**Delete**" button.

One of the following messages will appear:

If you answer yes to the prompt, the user is deleted. However, the name of the deleted user will still appear on existing calibration reports.

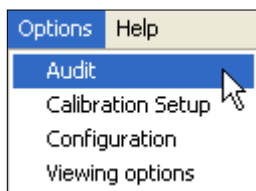


If you try to delete the user which is currently active, the following message appears. The active user cannot be deleted.

Note: If you really want to delete this user, you must log onto Windows using a different user account, for which a corresponding user has to be available in Calibry.

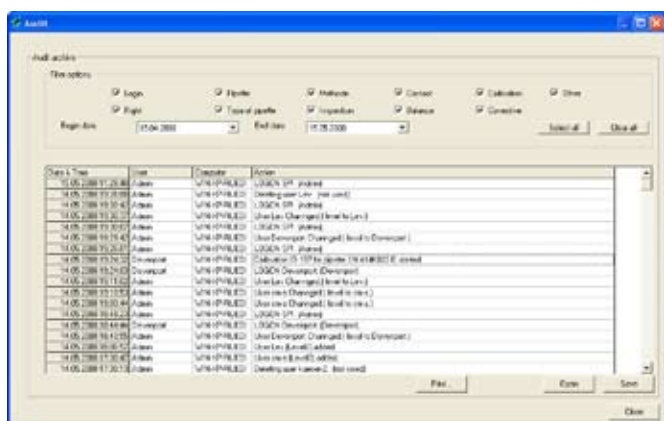
13 Audit Trail

Calibry records all operations in a so-called audit trail. This makes it possible to find out at any time which user worked with Calibry when, and what actions they performed.



In the menu, select “**Options/Audit**” to open the audit trail.

Note: The audit trail is stored in the Calibry database.



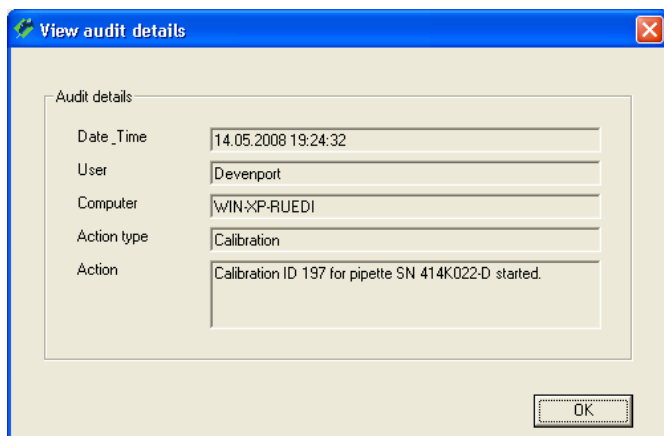
The most recent additions to the audit trail are shown at the top. To view earlier records, use the scroll bar. Each record displays the date, time, user, computer, and corresponding action.

The audit trail can be very extensive. For greater clarity, the entries can be filtered. You find the filter criteria in the upper part of the window.

Using the checkboxes you can filter the audit trail by the type of action that was taken. **Example:** If you only activate the “Calibration” checkbox, the audit trail will only show entries related to calibrations (start or abort a calibration, select the pipette tips, etc.).

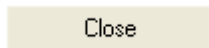
In addition, you can filter the audit trail by entry date (from ... to).

After having filtered the list, you may wish to display all records of the audit trail again. To do so, simply click on the “**Select all**” button, this re-activates all checkboxes.



To view the details of a specific record, double-click on the respective record.

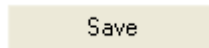
The remaining **buttons** below the audit trail list provide the following options:



Closes the audit trail.

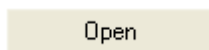


Prints the audit trail out on a selectable Windows printer. **Note:** If the audit trail is filtered, only the filtered list is printed. Therefore, make sure the filter criteria is set correctly.



Saves the current audit trail to a ".mdb" database file (Microsoft Access®). The name and the path of the file can be set by the user. Once saved, the current audit trail is replaced with a new one. Initially, the new audit trail contains just one record confirming that the previous audit trail has been archived.

Note: This option is meant for archiving the audit trail. Make sure to back up the database created with the "Save" button (".mdb" file) and properly document the archiving and backup procedures employed. This option is not available when working in a SQL environment.



Opens an archived audit trail (".mdb" file). This allows the user to view and print previous audit trails. Note that current events are always recorded to the latest audit trail, archived audit trails are never changed!

14 Demo Mode

If you do not register Calibry, every time you start the program it runs in so-called demo mode. Although Calibry is fully functional in demo mode, balances connected to it are not activated. This allows you to simulate measurement values for calibration as described in this chapter.

If you wish, you can also use Calibry in demo mode **after you have registered it**. This could be, for example, to demonstrate the program, or for training or testing purposes. For these situations demo mode has the following advantages:

- You do not need a balance to perform (simulated) calibrations.
- Since no real measurement values are recorded, calibrations run much faster.
- You can input random measurement values (e.g. for testing).

In principle you can work with Calibry in demo mode exactly the same as in normal working mode. The only difference is the procedure for calibration, which is explained below.

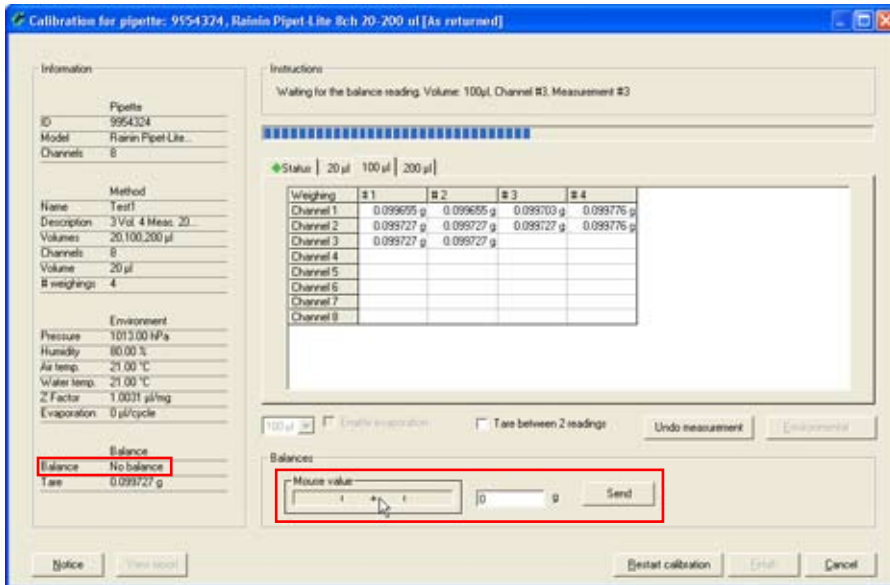


Note: Calibry does not distinguish between data which is input or determined in demo mode or in normal working mode: It always uses the same database. All settings, calibrations, etc. that you make in demo mode are handled exactly the same as those you make in normal working mode and they are also added to the history. The only difference is that the reports of calibrations you perform in demo mode have “!! DEMO !!” in the title.

When you start a calibration (chapter 9) the window at left appears (example). If you wish to work in demo mode select “**No balance**” in the balance section.

Note: If Calibry was not registered or the application did not find a balance at startup, only the “No balance” setting will be available and Calibry automatically runs in demo mode.

Select the appropriate parameters in this window (see chapter 9), then start calibration.



The "No balance" indication at bottom left in the window tells you that Calibry is running in demo mode and no real measurement values are being determined.

Now input measurement values by clicking with the mouse on the "Mouse value" field.

The "+" sign in the middle of the field represents the nominal volume, and the two vertical marks at left and right represent the specified tolerances for the "Systematic error". Every time you click on the button, the value is input that corresponds to the current position of the mouse pointer. In the example at left, several values have already been input.

When you have input all the values for one volume, Calibry changes automatically to the next volume and inputs a value every time you click. However, the display does not change automatically to the next volume, so if you want to see the values you input, you must click on the tab for the corresponding volume.

Just the same as for a real calibration, you can view the result of the calibration at any time by clicking on the "Status" tab (provided you already entered enough values).

When you have entered the measurement values for all volumes, the message "End of the calibration" appears in the upper part of the window.

Needless to say, in demo mode all the other calibration options (delete invalid measurement values, restart calibration, print a report, etc.) can also be used. You will find corresponding information in chapter 9.

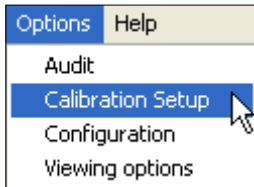
Inputting precise values

If you want to input precise values (e.g. for testing), the procedure described above is not sufficiently accurate. In this case you must enter the desired value in the field to the right of "Mouse value" and then click on the "Send" button. The value you input is then inserted in the next free position in the table.

15 Changing the Program Settings

Caliby can be adapted to your specific requirements. The following chapters explain how to establish standard settings for calibration, for the application and for the appearance of the various lists.

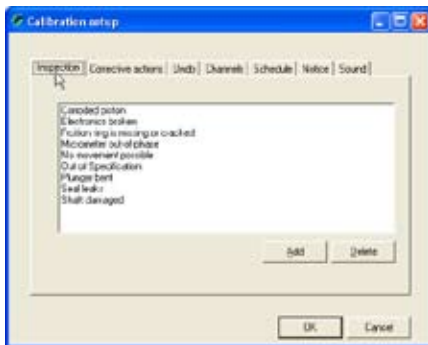
15.1 Settings for calibration



Select the **"Options/Calibration Setup"** menu.

In the **"Calibration Setup"** window you may establish various settings for calibration as explained hereafter.

Editing the list of pipette defects



In the main window of the "Calibration Setup" menu, click on the **"Inspection"** tab.

When "Calibration with physical inspection" is used, the pipette is checked for a list of possible defects before calibration (chapter 9.3). The list installed at the factory contains a selection of the most common defects. You can adapt this list to your needs.

You can delete individual items from the list with the "Delete" button, and with the "Add" button you can add further items to the list.

Editing the list of fault correction measures

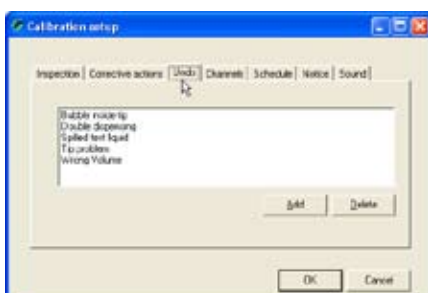


In the main window of the "Calibration Setup" menu, click on the **"Corrective actions"** tab.

If "Calibration with physical inspection" detected defects in the pipette, after the inspection a list of possible corrective actions appears (chapter 9.3). This list installed at the factory contains a selection of the most common corrective actions. You can adapt this list to your needs.

You can delete individual items from the list with the "Delete" button, and with the "Add" button you can add further items to the list.

Editing the list of reasons for deleting measurement values



In the main window of the "Calibration Setup" menu, click on the **"Undo"** tab.

If during a calibration you want to delete an invalid measurement value ("Undo measurement", see chapter 9.2), you must select a reason for the deletion from the list. The list installed at the factory contains a selection of the most common reasons for deleting measurement values. You can adapt this list to your needs.

You can delete individual items from the list with the "Delete" button, and with the "Add" button you can add further items to the list.



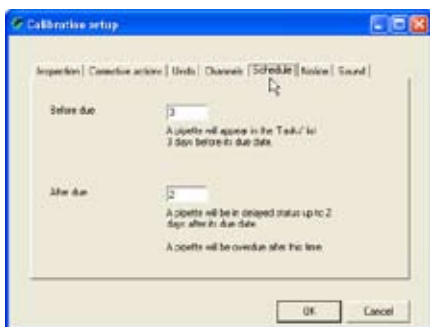
Defining the number of selectable pipette channels

In the main window of the "Calibration Setup" menu, click on the "Channels" button. Here you can specify how many channels should be available for the definitions of balances, pipette types, and test methods (setting range: 1 – 99 channels, 1, 4, 8, 12 and 24 channels are preset at the factory).

Note: Irrespective of the number of pipette channels that you specify here, the maximum number of channels available for the definitions of balances and test methods is 12. The maximum number of channels available for the definition of pipettes is 99.

You can delete existing items with the "Delete" button, and with the "Add" button you can add new items.

Note: If you want to delete an item that is being used by a balance, when you call up the respective balance in the "Balances & Devices/Management" menu a message appears stating that the number of channels was changed and must be checked. Deleting an entry has no direct influence on already specified pipette types and test methods except that when they are subsequently processed the number of channels is no longer available.



Specifying the settings for monitoring pipettes over time

In the main window of the "Calibration Setup" menu, click on the "Schedule" tab. In this menu you can define the settings for monitoring pipettes over time in the "Tasks" list (see chapter 8).

In the first field ("Before due"), you can specify how many days before its next calibration date a pipette should be automatically added to the "Tasks" list (factory setting: 3 days).



From when they appear in the "Tasks" list until the scheduled calibration date, the pipettes are marked with the symbol shown at left ("on time").

In the second field ("After due"), you can specify for how many days after the scheduled calibration date a pipette should be given the status "delayed" if the calibration was not performed. During this time the pipette is marked in the "Tasks" list with the symbol shown at left (factory setting: 2 days).



When this time has expired, the pipette is marked in the "Tasks" list with the "overdue" symbol shown at left.



Defining comments



In the main window of the "Calibration Setup" menu, click on the "Notice" tab.

You may append a comment to each calibration (chapter 9.2) which will appear on the calibration report. Instead of entering your own text you may select a preset comment from a list.

In this menu you can define the comments that you want to be available from the list. Note that no comments are preset at the factory.

Use the "Add" button to add a new comment to the list. With the "Delete" button you can remove comments from the list.

Activating and deactivating acoustic signals

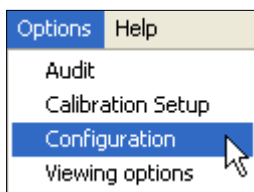


In the main window of the "Calibration Setup" menu, click on the "Sound" tab.

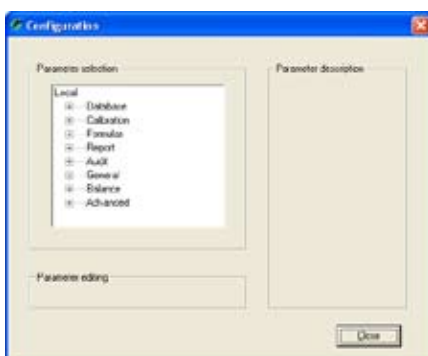
During calibration, Calibry emits various acoustic signals (when switching to the next volume, after having completed all measurements, when exceeding a tolerance limit, and in case of errors or when deleting erroneous measured values, respectively).

If desired, these acoustic signals can be enabled or disabled individually.

15.2 General settings



Select the "Options/Configuration" menu.

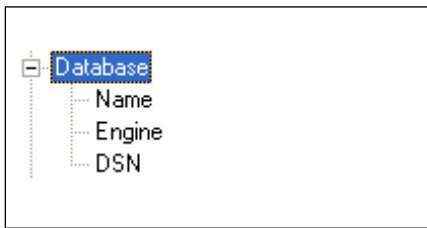


The "Options/Configuration" menu holds a large number of settings, that is why it is divided into various groups that are described in the following sections.

To display the various settings, click on the plus sign to the left of the respective subgroups. Instead of the plus sign, a minus sign now appears. If you click on the minus sign, the settings disappear and the list becomes shorter and clearer again.

The "Parameter description" window contains a short description of the respective setting, and information about valid values.

With the "Close" button you can save changed settings and quit the menu.



Database settings ("Database")

These settings are usually defined when Calibry is installed and can only be changed in exceptional situations as, for example, to allow a stand-alone installation to access a network database. **Note:** Incorrect settings can make it impossible for Calibry to access the database!

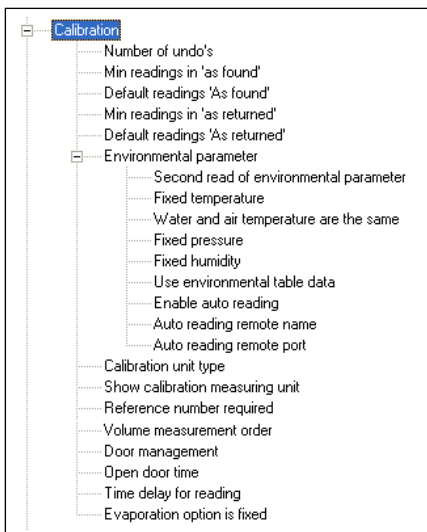
"Name": Name of the Calibry database. If it is a Microsoft Access® database, the full path name must be entered (example: C:\Program Files\Calibry\Calibry.mdb).

"Engine": Database type, either Microsoft Access® or SQL Server (network database). If you select SQL, you must also specify the DSN.

"DSN": Initialization string for the connection to the SQL server (DSN = database system name).

Calibration settings ("Calibration")

In this group you define the settings for calibration.



"Number of undo's": The maximum number of invalid measurement values you can delete during a calibration (setting range 0 – 10, factory setting: 10).

"Min readings in 'as found'": The minimum number of "As Found" measurements Calibry accepts when defining a method (chapter 7.2), factory setting: 2.

"Default readings 'As found'": The number of "As Found" measurements Calibry suggests when defining a method (chapter 7.2), factory setting: 4.

"Min readings in 'as returned'": The minimum number of "As Returned" measurements Calibry accepts when defining a method (chapter 7.2), factory setting: 2.

"Default readings 'As returned'": The number of "As Returned" measurements Calibry suggests when defining a method (chapter 7.2), factory setting: 4.

"Environmental parameter": Settings for the environmental parameters:

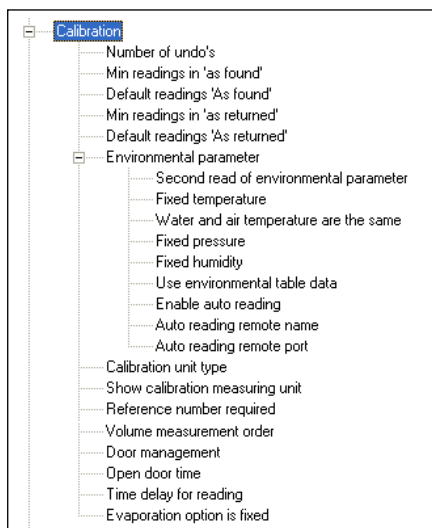
"Second read of environmental parameter": If you select "Yes" you may enter the environmental parameters again **after** calibration (this does not recalculate the Z factor). The new values appear on exported reports only. Factory setting: "No".

"Fixed temperature": If you select "No" (factory setting), the current temperature value (part of the environmental parameters of the calibration menu) can be changed before you do the calibration. If you set "Yes", the temperature cannot be changed (which may be useful if you are working in a climate-controlled room with a constant temperature).

"Water and air temperature are the same": If you select "No", the environmental parameters window will show an additional field for entering the air temperature. If you select "YES" (factory setting) Calibry assumes that water and air temperature are the same.

"Fixed pressure": If you select "No" (factory setting), the current barometric pressure (part of the environmental parameters of the calibration menu) can be changed before you do the calibration. If you set "Yes", the pressure cannot be changed.

"Fixed humidity": If you select "No" (factory setting), the current air humidity setting (part of the environmental parameters of the calibration menu) can be changed before you do the calibration. If you set "Yes", the relative humidity value cannot be changed.



"Use environmental table data": If you select "No" (factory setting), the values for temperature and barometric pressure can be freely changed before you do the calibration (provided they were not blocked, see above). If you select "Yes", the combination of temperature and barometric pressure must be selected from the table (so that the correct Z factor is calculated automatically).

"Enable auto reading": If you select "Yes", Calibry attempts to read the environmental data from an appropriate external application. In this case you will have to set up the next two parameters ("Remote name" and "Remote port"). Factory setting: "No". Further information on how to get environmental data from a remote application is found in chapter 16.

"Auto reading remote name": Host name or IP address of the computer that will supply the environmental data.

"Auto reading remote port": Number of the port to be used for communication with the remote computer that supplies the environmental data.

"Calibration unit type": Select the desired measured variable for the calibrations: "Weight" or "Volume"; factory setting: "Weight".

"Show calibration measuring unit": If you select "Yes" (factory setting), the calibration values are displayed with the unit. If you set "No", the measurement values are displayed without a unit.

"Reference number required": If you select "No" (factory setting), entering a reference number before calibration is optional. If you select "Yes", the reference number must be entered, otherwise calibration cannot be started.

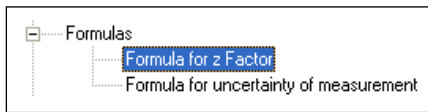
"Volume measurement order": If you select "Up" (factory setting), the smallest volume appears at the top of the list of calibration volumes. If you select "Down", the list of calibration volumes starts with the largest volume.

"Door management": This setting applies only to balances that have an automatic door function (e.g. particular METTLER TOLEDO AX and XP models). Select "Disabled" if your balance does not have an automatic door function or if you do not want Calibry to control the doors (in this case the doors will be controlled by the balance). The "Manual" setting is meant for balances equipped with an integrated light barrier that controls the doors (e.g. XP26PC). Select "Cycle time" to have Calibry control the door movement depending on the working sequence. Further information on the setting of this parameter for various instruments by METTLER TOLEDO is found in chapter 17.

"Open door time": This setting is effective only if you have activated "Cycle time" in the "Door Management" options. This value (in seconds) determines for how long the door will be open once the calibration has been started. Select a duration that allows you to duly complete the pipetting process (factory setting is 4 seconds).

"Time delay for reading": This setting is effective only if you have activated "Cycle time" in the "Door Management" options. This value (in seconds) determines for how long the balance waits before reading the measured value. This delay helps the measured value to reach stability before being transmitted to Calibry (factory setting is 7 seconds). **Caution:** The delay is counted from the start of the calibration process, hence the shortest admissible duration is equal to the opening time of the automatic door (as selected in the previous setting).

"Evaporation option is fixed": If you select "No" (factory setting), the "Enable evaporation" option is available in the calibration dialog (see chapter 9). If you set "Yes", this option is not available.



Settings for the use of formulas ("Formulas")

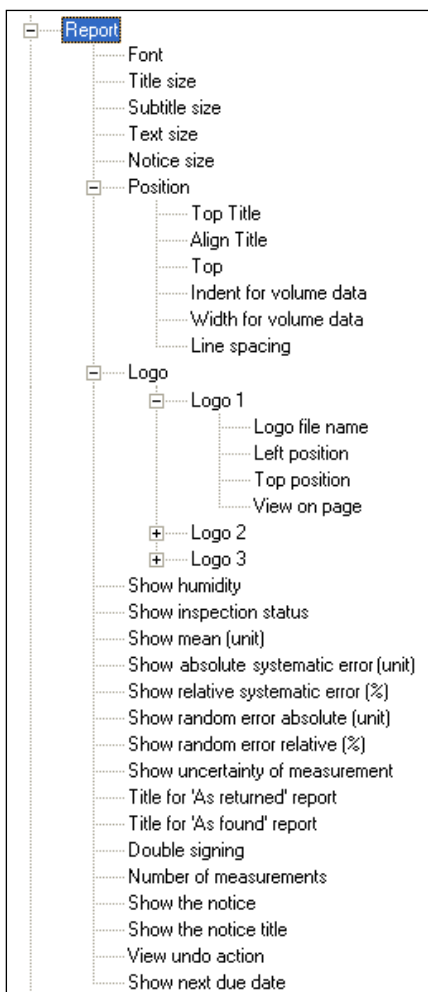
In this group you define the formulas for the calculation of the Z factor and the measurement uncertainty. **Caution:** These are global settings and the formulas defined will be used by all Calibry workstations accessing this database! Changes to the formulas take effect for subsequent calibrations only.

"Formula for z Factor": Determines how the Z factor is calculated. You may select the calculation according to "ISO 8655" (factory setting) or "ISO/TR 20461". In addition, you may define your own custom formula ("Custom").

If you select "Custom", you may click on the "Edit" button to launch the equation editor for the Z factor and then define your own formula. Chapter 16 provides information on how to use the equation editor.

"Formula for uncertainty of measurement": Determines how the measurement uncertainty (shown in the reports) is calculated. You may select the calculation according to "ISO 8655" (factory setting), or you may choose to design your own formula ("Custom").

If you select "Custom", you may click on the "Edit" button to launch the equation editor for the measurement uncertainty and then define your own formula. Chapter 16 provides information on how to use the equation editor.



Settings for the reports ("Report")

In this group you define the settings for the report layouts. You can view the effects of the changes immediately by calling up a report in the "Reports" menu. **Notes:** These settings affect all reports, including reports that had already been created when the changes were made. When designing reports please respect the applicable standards and legal provisions! Before making changes please note the current settings thus you can easily revert to the previous values, if required. The user accepts full responsibility for the report layouts!

"Font": Selects the font for the report. All fonts that have been installed under Windows are available.

"Title size": Font size of the title (setting range: 6 – 20 points, factory setting: 16 points).

"Subtitle size": Font size of the subtitle (setting range: 6 – 20 points, factory setting: 10 points).

"Text size": Font size of the report text (setting range: 6 – 16 points, factory setting: 8 points).

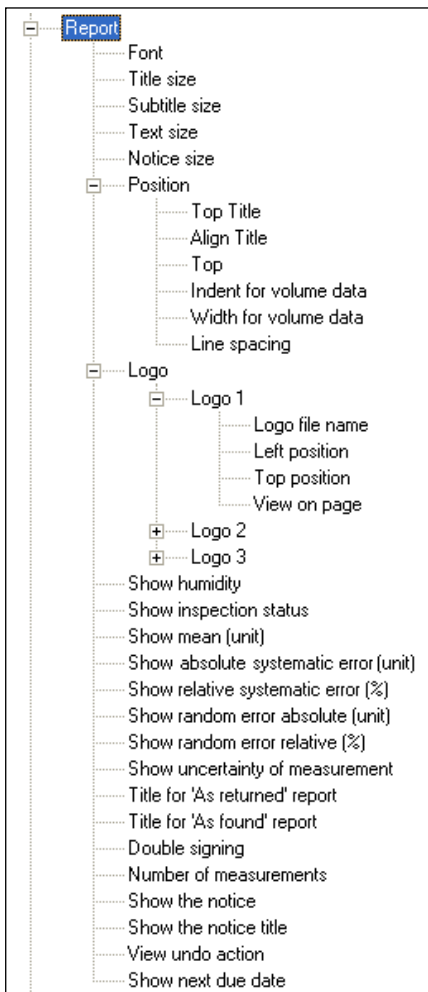
"Notice size": Font size of the remarks text for calibrations (setting range: 6 – 10 points, factory setting: 8 points).

"Position": Settings for positioning the report elements:

"Top Title": Distance of the report title from the top edge of the paper (factory setting: 500 twips, setting range: 100 – 2500 twips. **Note:** 1 cm = 567 twips). Make sure that this distance is less than the distance for the report contents ("Top" setting, see below) so that the title is above the report contents. The value should be greater than the unprintable margin of your printer; if it is smaller, the title will be printed incompletely or not at all.

"Align Title": Alignment of the report title (centered, left or right aligned; factory setting: centered).

"Top": Distance of the report contents from the top edge of the paper (factory setting: 1000 twips, setting range: 200 – 2500 twips). Make sure that this distance is bigger than the distance for the title (previous setting) so that the report contents appears below the title.



“Indent for volume data”: Space at left of the report for fixed designations (“Systematic Error” for example). Input as percentage of the page width (factory setting: 22 [%], setting range: 5 – 30 [%]).

“Width for volume data”: Space reserved on the right side of the report (next to the fixed designations, see above) for measurement values (factory setting: 77 [%], setting range: 50 – 95 [%]). The input value in percent relates to the printable area that remains after subtracting the settings for the fixed designations (see above).

“Line spacing”: Changes the line spacing of the report contents (factory setting: 50 twips, setting range: -100 – 300 twips). **Note**: The program calculates the line spacing automatically from the selected font size and this setting only makes the calculated line spacing somewhat bigger or smaller.

“Logo”: Settings for the placement of logos on the reports. Up to three logos may be placed on a report. Make sure your logos are the appropriate size and resolution. Calibry cannot scale the logos and places them in their original size. For every logo the following settings are available:

“Logo file name”: Name of the logo file. Respect the admissible file types and include the file name extension and the path (e.g. “D:\Logo.jpg”).

“Left position”: Distance of the left edge of the logo from the left edge of the paper (factory setting: 100 twips, setting range: -500 – 11000 twips. **Note**: 1 cm = 567 twips). Most printers do have a non-printing area along the edges. Make sure your logo is in the printable area of your printer. Make sure the logo does not get in conflict with the contents of the report (“Position” settings, see above).

“Top position”: Distance of the upper edge of the logo from the upper edge of the paper (factory setting: 100 twips, setting range: -500 – 14500 twips. **Note**: 1 cm = 567 twips). Most printers do have a non-printing area along the edges. Make sure your logo is in the printable area of your printer. Make sure the logo does not get in conflict with the contents of the report (“Position” settings, see above).

“View on page”: Select the pages on which the logo will be printed. “AF” designates pages with status check results while “AR” designates pages holding the results of the real (“As returned”) calibration. You may select if the logo prints on all pages or just on the first page containing the respective results.

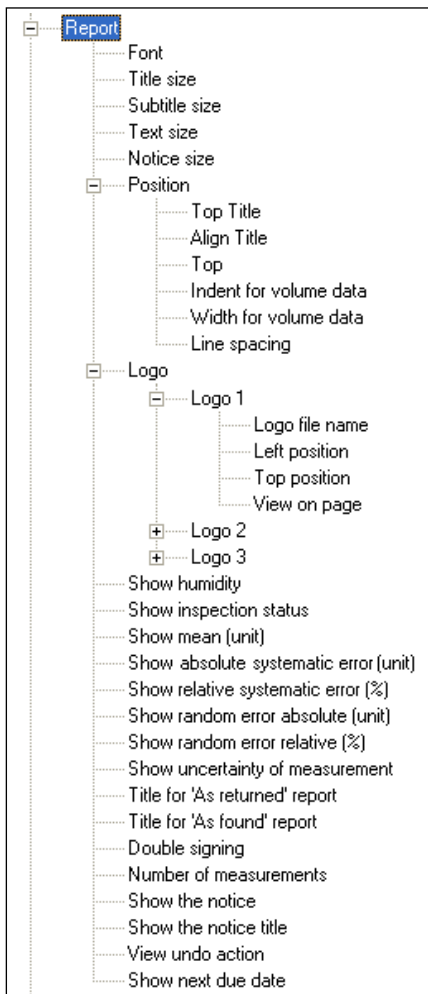
“Show humidity”: This setting specifies whether the air humidity value should be printed on the reports (factory setting: “Yes”).

“Show inspection status”: This setting is only relevant for calibrations including a physical inspection for faults. The setting specifies whether the result of the inspection (“Passed” or “Failed”) should be printed on the reports (factory setting: “Yes”).

“Show mean (unit)”: This setting specifies whether the mean value of the measurements should be printed on the reports (factory setting: “Yes”).

“Show absolute systematic error (unit)”: This setting specifies whether the reports should show the “Systematic error” as an absolute value (factory setting: “Yes”).

“Show relative systematic error (%)”: This setting specifies whether the reports should show the “Systematic error” as a relative value (factory setting: “Yes”).



“Show random error absolute (unit)”: This setting specifies whether the reports should show the “Random error” as an absolute value (factory setting: “Yes”).

“Show random error relative (%)”: This setting specifies whether the reports should show the “Random error” as a relative value (factory setting: “Yes”).

“Show uncertainty of measurement”: This setting specifies whether the reports should show the measurement uncertainty (factory setting: “Yes”).

“Title for ‘As returned’ report”: The title of the calibration report. If you do not specify a title of your own, the standard title “CALIBRATION REPORT” is used. Recommendation: Insert a blank after the title so that if there is a reference number it is separated from the title.

“Title for ‘As found’ report”: Title of the status check (“As found”) report. Calibry suggests “CALIBRATION REPORT” and you may change this, as needed. Recommendation: Insert a blank after the title so that if there is a reference number it is separated from the title.

“Double signing”: If you activate this option (factory setting: “No”), you can only print reports that have been countersigned by another user who has the necessary authorization (see chapter 12).

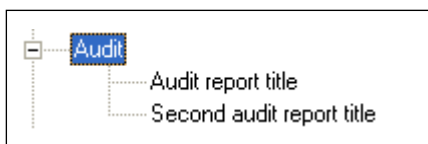
“Number of measurements ‘As returned’”: This setting specifies how many measurements (calibration results under the title “As returned”) are listed on the report for each pipette channel (factory setting: 10, setting range: 4 – 30).

“Show the notice”: This setting specifies whether the comments entered upon calibration (if any) should be printed on the reports (factory setting: “Yes”).

“Show the notice title”: This setting specifies whether the title of the comments for calibrations should be printed on the reports (factory setting: “Yes”).

“View undo action”: This setting specifies whether aborted calibrations, and the reasons for them, should be printed on the reports (factory setting: “No”).

“Show next due date”: This setting specifies whether the next scheduled calibration date should be shown on the reports (factory setting: “Yes”).



Settings for the audit trail (“Audit”)

In this group you define the settings for the audit trail (see chapter 13).

“Audit report title”: The title of the audit trail printout. In addition, there are three special operators you can use:

- “%FromTo”: Adds the dates of the first and last audit trail entry dates to the title.
- “%Computer”: Adds the name of the computer to the title.
- “%User”: Adds the name of the user to the title.

“Second audit report title”: If you wish, you can input the text for an additional line of title here. The same special operators are available as for the main title.

General settings (“General”)



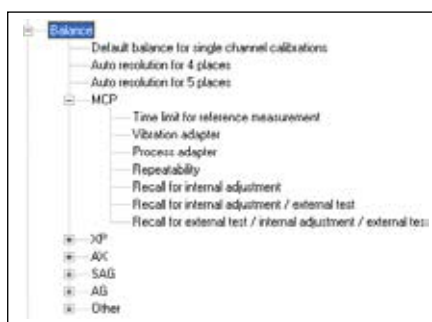
In this group you define the general settings for Calibry.

“Debug”: If you wish, you can enable a special mode for programmers in which some windows provide extra buttons and supplementary information, and additional data are recorded in the log file (factory setting: “Debug” mode disabled). **Note**: The debug mode is not suitable for normal working with Calibry.

“Start tab”: When you start Calibry it normally displays the “Pipette” tab (menu). If you want Calibry to show a different menu at startup (e.g. the “Tasks” list), input the number of the menu here. The tabs (menus) are numbered from left to right (1 = “Pipette”, 5 = “History”).

“Displayed records”: The lists in particular menus (“Pipette”, “Reports”, etc.) can be very extensive. You may increase the display speed by limiting the number of displayed records. Factory setting: “0” = limitation disabled, i.e. all data records are displayed. If you want to enable the limitation, enter a value between 1 and 1000 for the number of records to be displayed. With the limitation active, the record indicator above the lists will show “Only x rows” (“x” being the number of records you selected here). You may temporarily display the entire list (all records) by clicking on the record indicator. However, as soon as the list is refreshed (e.g. by switching the menu) the limitation will become active again.

Balance settings (“Balance”)



In this group you define the settings for the balances.

“Default balance for single channel calibrations”: Use this setting to determine the standard balance for single-channel calibrations. The selected balance will appear at the top of the balance list in the “Before calibration” dialog.

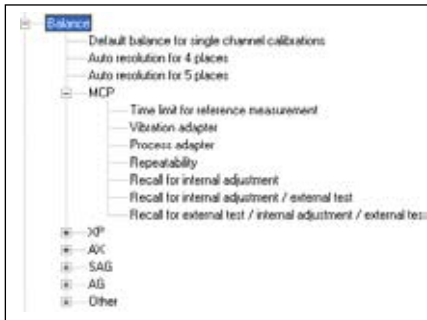
“Auto resolution for 4 places”: This setting applies to METTLER TOLEDO **high-resolution XP and MCP balances only**. This value determines up to which nominal pipette volume the balance works at a resolution of 0.01 mg (above this limit value, the display resolution is automatically reduced to 0.1 mg). Setting range: 0 – 1000 [µl] (0 = automatic resolution switching disabled). Factory setting: “0”.

“Auto resolution for 5 places”: This setting applies to METTLER TOLEDO **highest-resolution XP and MCP balances only**. This value determines up to which nominal pipette volume the balance works at a resolution of 0.001 mg (above this limit value, the display resolution is automatically reduced to 0.01 mg). Setting range: 0 – 1000 [µl] (0 = automatic resolution switching disabled). Factory setting: “0”.

“MCP”: These settings apply to the METTLER TOLEDO MCP balances only:

“Time limit for reference measurement”: Calibry checks how much time remains until the balance will request a reference measurement. If this amount of time is less than the value specified here, Calibry performs a reference measurement on the balance before the calibration. If, on the other hand, the time until the next reference measurement is longer than the specified value, Calibry does not perform a reference measurement before the calibration. Factory setting: 30 seconds.

“Vibration adapter”: Setting of the vibration adapter. Factory setting: 3. Further information on the vibration adapter is found in the Operating Instructions supplied with your MCP balance.



“Process adapter”: Setting of the process adapter. Factory setting: 0. Further information on the process adapter is found in the Operating Instructions supplied with your MCP balance.

“Repeatability”: Setting of the repeatability. Factory setting: 1. Further information on the repeatability is found in the Operating Instructions supplied with your MCP balance.

“Recall for internal adjustment”: Every MCP balance needs to be adjusted on a regular schedule using the internal adjustment weight. This setting determines the admissible number of days between adjustments. As soon as the specified period expires, the “Req. Cal” column of the device list (menu “Balances & Devices/Management”, see chapter 4) will advise you to carry out an adjustment and/or test. Factory setting: 0 (Monitoring of adjustment interval disabled).

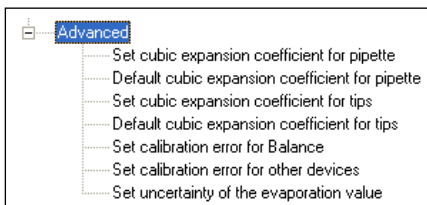
“Recall for internal adjustment / external test”: As above but Calibry also asks you to check the internal adjustment with an external test weight. Factory setting: 0 (Monitoring of adjustment/test interval disabled).

“Recall for external test / internal adjustment / external test”: As above but Calibry first asks you to check adjustment with an external test weight, then adjust the balance with the internal weight, and finally recheck the adjustment with the external test weight. Factory setting: 0 (Monitoring of adjustment/test interval disabled).

The options for the remaining balances (XP, AX, etc.) just include the monitoring of the adjustment/test interval as explained above.

Information on how to set up the various balances is found in chapter 17.

Options for experts (“Advanced”)

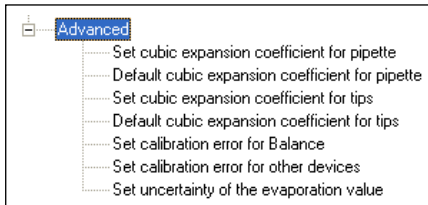


In this group of settings experts may further customize Calibry. This may be mandatory for customers working to particular standards that require the documentation of the values described below. **Note**: The values described hereafter appear only in the exported records and basically Calibry does not perform any calculation based on these values, except if you are using one of these values in the equation editor (for calculating the Z factor or the measurement uncertainty, see chapter 16).

“Set cubic expansion coefficient for pipette”: You may set up Calibry to display an additional field for the entry of the cubic expansion coefficient when defining a new pipette (“Type Editor”, see chapter 6.1). In this case there will also be a second field for the measurement uncertainty of the cubic expansion coefficient. Factory setting: “No” (no entry of the cubic expansion coefficient).

“Default cubic expansion coefficient for pipette”: You may define the standard cubic expansion coefficient for pipettes (in the range of 0 to 1, factory setting: 0).

“Set cubic expansion coefficient for tips”: You may set up Calibry to display an additional field for the entry of the cubic expansion coefficient when defining a new pipette tip (“Tip Editor”, see chapter 9.2). In this case there will also be a second field for the measurement uncertainty of the cubic expansion coefficient. Factory setting: “No” (no entry of the cubic expansion coefficient).



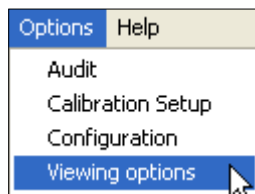
“Default cubic expansion coefficient for tips”: You may define the standard cubic expansion coefficient for pipette tips (in the range of 0 to 1, factory setting: 0).

“Set calibration error for Balance”: You may set up Calibry to display additional fields for the entry of measurement errors when calibrating balances or testing calibration with an external test weight (see chapter 4.5). Select “SE and RE” if you need 2 fields for entering errors (e.g. for “Random Error” and “Systematic Error”), or select “2AB” for a total of 4 measurement error fields. Factory setting: “Disabled” (no fields for the entry of measurement errors).

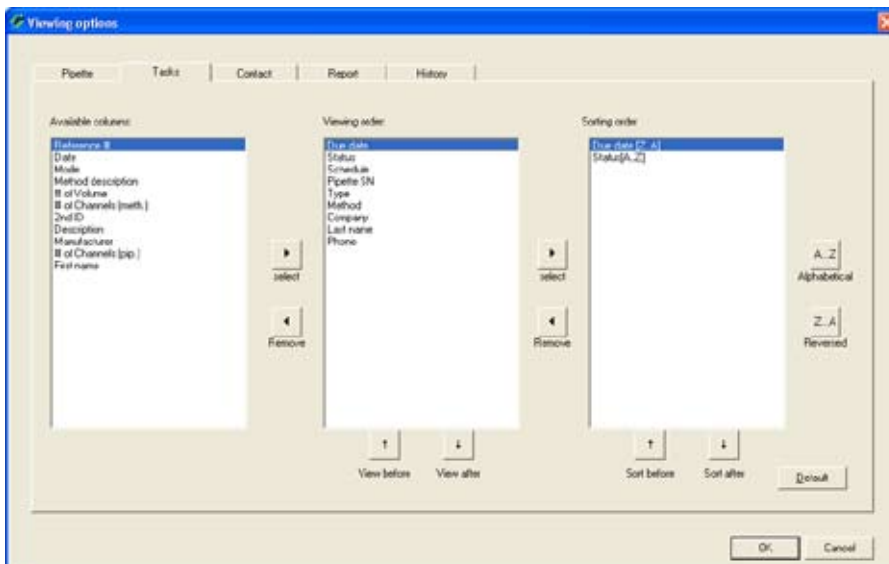
“Set calibration error for other devices”: Same setting as above but for entering the calibration errors of other devices (thermometer, hygrometer, barometer, etc.). “Disabled” (no fields for the entry of measurement errors).

“Set uncertainty of the evaporation value”: You may set up Calibry to display an additional field for entering the measurement uncertainty of the evaporation value when defining the environmental parameters (see chapter 9.2). Factory setting: “Disabled” (no field for the measurement uncertainty of the evaporation value).

15.3 Changing the layout of Calibry



Select the “**Options/Viewing Options**” menu.



Each menu of Calibry contains a list of information items. For every menu you can specify individually which information items should be shown in the list and in what sequence.

Click on the appropriate tab, to select the menu whose appearance you want to change (in the example at left, the “**Tasks**” list).

The “**Viewing order**” section of the window lists the information items that are currently displayed in the respective menu. The “**Available columns**” section lists the additional information items that can be displayed in the selected window if required.

You can use the “**Select**” and “**Remove**” buttons to move the individual options between the two sections.

If you move an option from the “**Available columns**” section to the “**Viewing order**” section, it is always added to the end of the list. You can move items in the “**Viewing order**” list up or down with the two buttons “**View before**” and “**View after**”. That way you can specify the sequence for displaying the columns in the menu list.

For each item of information shown in the menu (“**Viewing order**”) you can also specify the sort sequence. To do this, mark the respective entry in “**Viewing order**” and use the “**Select**” button to copy it to the “**Sorting order**” section of the window. There you can specify whether the respective column in the menu list should be sorted in ascending (“**A...Z**”) or descending (“**Z...A**”) sequence. The priority of the sort key is determined by the sequence of the information items in the “**Sorting order**” section. You can use the “**Sort before**” and “**Sort after**” buttons to move the information items up or down. The information item at the top of the list is the sort criterion with the highest priority.

You can reset the layout of the selected menu to the factory settings with the “**Default**” button.

16 Advanced Options

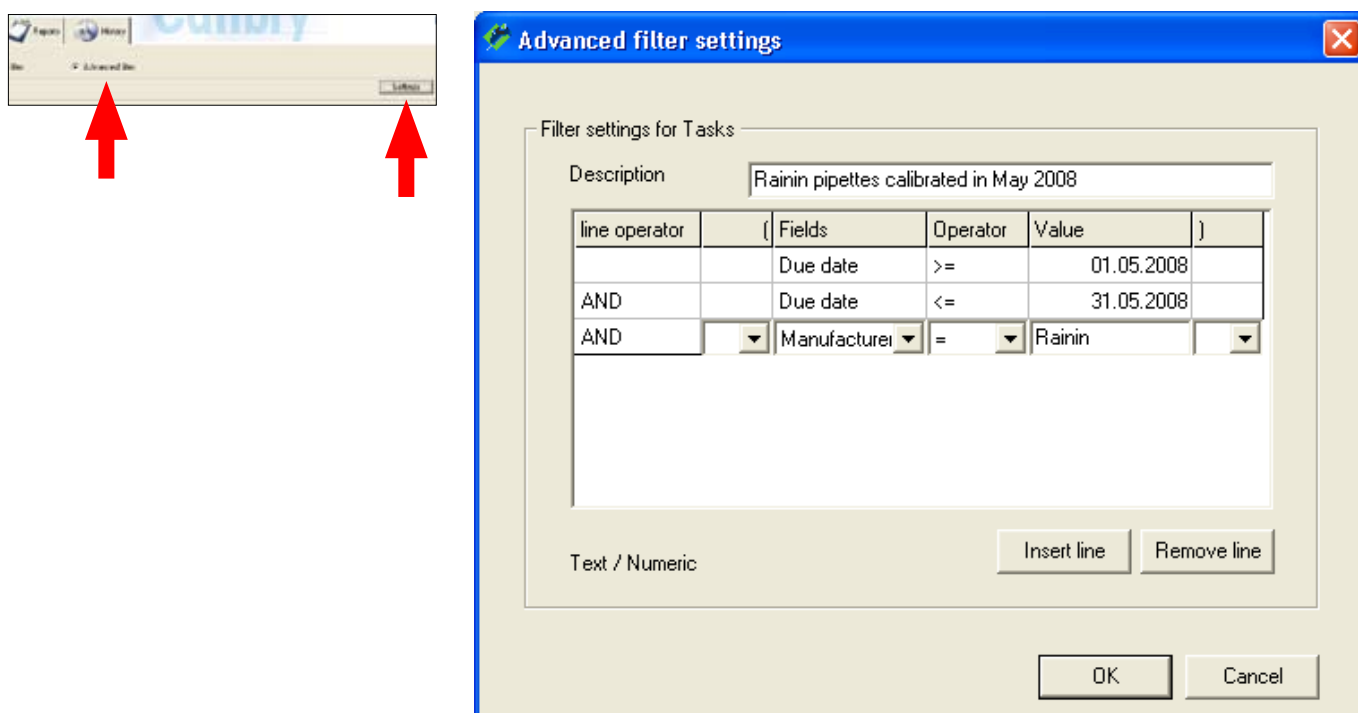
This chapter provides miscellaneous information on how to customize Calibry for your specific application.

16.1 Defining filters

Chapter 3 explains how to filter the lists of Calibry. The filter editor allows to create you own filters.

Note: The definition of filters requires basic knowledge of Boolean algebra of the type used for database inquiries. It is assumed that you have this knowledge, since describing it would exceed the scope of these instructions.

You may define a particular filter for every list ("Pipette", "Tasks", "Contact", "Reports", or "History"). For this reason make sure the list for which you want to define a filter is displayed (in the example below, the "Tasks" list). Check the box "**Advanced filter**", then click on the "**Settings**" button to launch the filter editor.



If you wish, in the "**Description**" field you can give the filter a name that will be shown in the title bar of the filtered list. It is advisable to use a name that indicates the selection criteria used for the filter.

Click on the "**Fields**" column of the first line and then on the arrow to display all the available fields. Select the first field for which you want to define a selection criterion. When you have selected a field, information about the respective data type appears in the bottom left corner of the window. (In the above example, "Manufacturer" is a field of type "Text/Numeric".)

Note: You can select any fields that belong to the list you have just selected (in the above example, the "Tasks" list). In the list itself, only a subset of these fields is normally shown (that you can select in the "Options/Viewing Options" menu, see chapter 15). However, you can also select according to fields that are not shown in the list.

Click on the first line in the "**Operator**" column and then on the arrow to display all the mathematical operators that are available. Select the desired operator.

Click on the first line in the "**Value**" column and enter the selection criterion. (Note the information about the allowable data type in the bottom left corner of the window.)

If you want to define more conditions, continue on the second line. In every subsequent line, you must select one of the logical operators "AND" or "OR" in the "**Line operator**" field. In the above example, a filter has been defined that only shows in the "Tasks" list pipettes made by "Rainin" that should be calibrated between May 1 and May 31, 2008.

If necessary, you can use the "**Insert line**" button to insert an empty line above the line that you mark. You can remove individual lines with the "**Remove line**" button.

Click on "**OK**" to save the filter and close the filter editor.

You can subsequently edit any filter by clicking on the "**Settings**" button again.

Further examples of filters

line operator	(Fields	Operator	Value)
		Type	=	Rainin*	
AND		P.Channels	=	8	
OR		P.Channels	=	12)

This **filter for the pipette list** ("Pipette" menu) only shows pipettes whose type designation starts with "Rainin" and which have 8 or 12 channels.

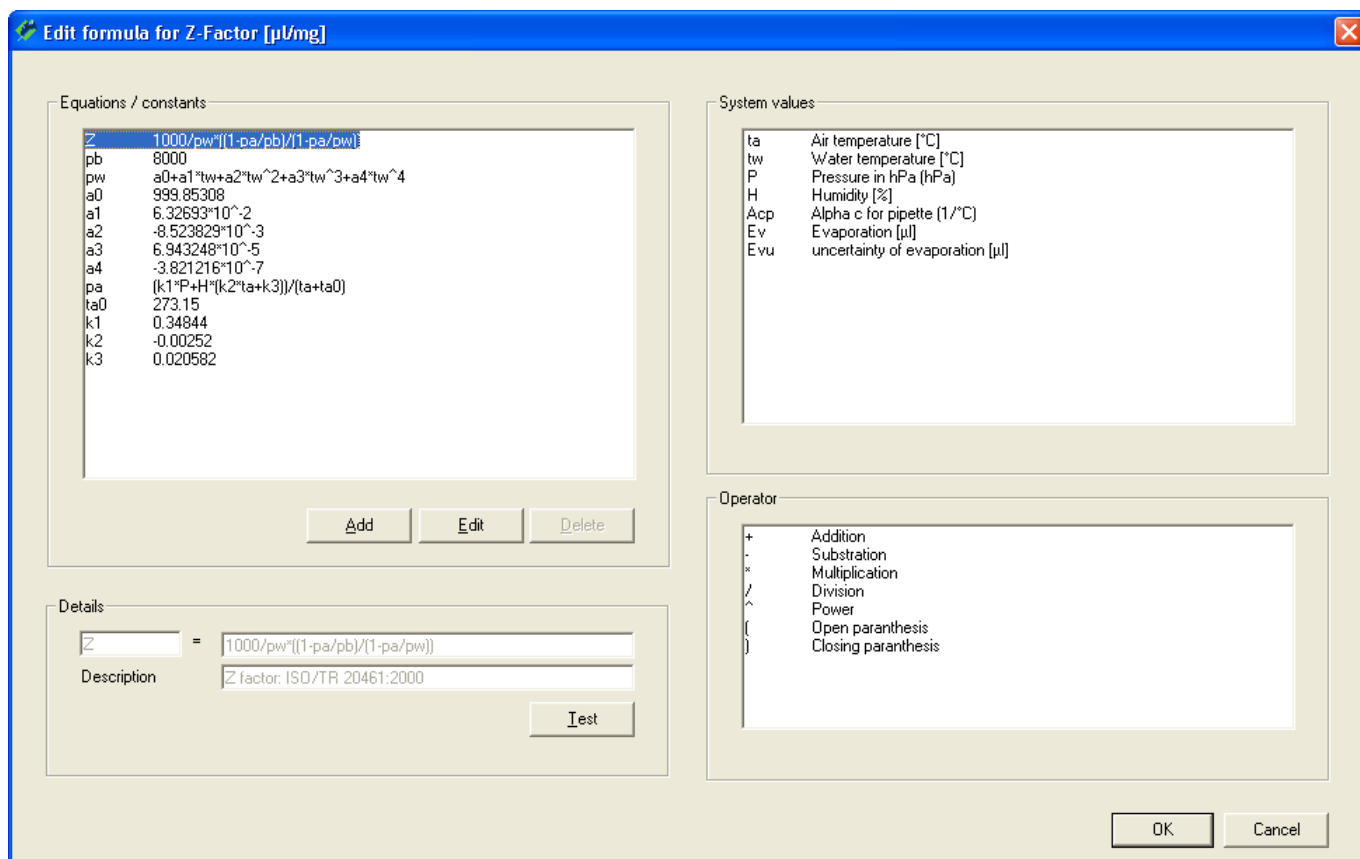
Note the wild card character "*" after "Rainin" that represents an undefined number of any characters.

line operator	(Fields	Operator	Value)
		User Name	=	Operator McGregor	
OR		User Name	=	Operator Miller	

This **filter for the reports list** ("Reports" menu) only shows reports that were created by users with the name "McGregor" or "Miller".

16.2 Using the equation editor

In the "Options/Configuration/Formulas" menu (see chapter 15.2) you may define formulas for the calculation of the Z factor and the measurement uncertainty. You may select one of the factory settings for the calculation of these values (e.g. according to ISO 8655), or you may set up your own formula ("Custom"). Calibry provides separate equation editors for the Z factor and the measurement uncertainty. Below you will find some information on how to use the equation editors. The example is based on the equation editor for the Z factor but these basic explanations apply to the equation editor for the measurement uncertainty as well.



At the left side of the window, in the "**Equations/constants**" section, you will find the formula for the Z factor listed at the very top. Always define this formula first.

Below the formula you will find the definitions of the various components. Note that all components used in the formula must be defined; they are evaluated when the formula is calculated.

The available system variables and operators are listed on the right side of the window.

If you wish to change the formula or a particular component, highlight the respective item and then click on "**Edit**". This transfers the selected item to the "**Details**" window where it can be edited.

Click on "**Save**" to save your definitions.

The "**Test**" button may be used to verify the formula. **Important:** The test routine does not verify the plausibility of the formula but simply checks if all used components are properly defined and the formula can thus be evaluated.

Hint: Use the following syntax to enter the radical of n: $^(1/n)$

Example: $\sqrt[3]{10}$

Entry: $10^(1/2)$

16.3 Automatic acquisition of environmental data from an external source

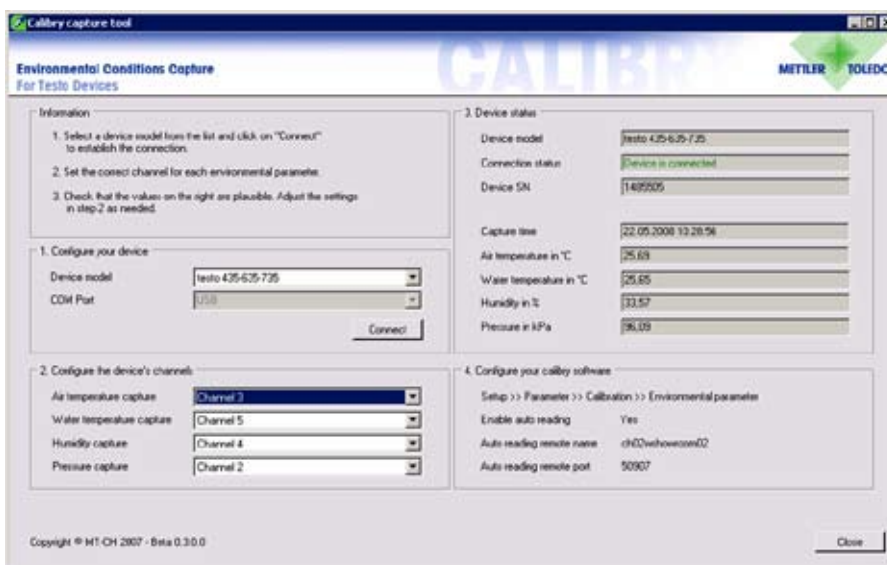
You may configure Calibry in a way that the environmental data (air and water temperature, relative humidity and barometric pressure) is acquired from an external application. CaptureTool supplied with Calibry is such an application, however, you may use other applications as well. Please read the information below.

The Calibry Capture Tool

The Capture Tool supplied with Calibry is a sample application that can supply environmental data to Calibry. Currently, the Calibry Capture Tool supports the Testo 435/635/735 measuring instruments.

Please proceed as follows if you wish to use the Calibry Capture Tool:

- Install the Capture Tool on your PC (see information below)
- Install the Testo measuring instrument
- Start the Capture Tool.



The Calibry Capture Tool will automatically recognize the connected measuring instrument and display the respective data in the "Device status" section of the window.

In the same section of the window check the plausibility of the environmental data displayed. If a particular value appears to be implausible (e.g. the air temperature value) select a different channel for this parameter from the "Configure the device's channels" window.

Enter the values from the "Configure your Calibry software" section of the window in the parameter fields of the same name in Calibry (these are found in the "Options/Configuration/Calibration/Environmental Parameter menu").

Upon every calibration Calibry will now acquire the current environmental data from the Capture Tool.

Note: The data export features of Calibry (chapters 16.4 and 16.5) include only environmental data acquired from an external source (e.g. the Capture Tool).

Notes on installing the Capture Tool:

- The Calibry CD-ROM contains the application and the appropriate source code which lets you customize the application, as required. The Capture Tool can be installed directly from the startup screen of the Calibry installation CD-ROM.
- When working in a network environment the firewall must be configured in a way that all PCs running Calibry can access the Capture Tool.
- After installation first make sure the measuring instrument is properly installed and all sensors are connected. Then, start the Calibry Capture Tool.
- Further information on the Calibry Capture Tool is found in the help file (in PDF format) on the Calibry CD-ROM.

Acquiring environmental data from another external source

Configure Calibry for automatic data acquisition. This can be accomplished in the "Options/Configuration/Calibration/Environmental Parameter/Enable auto reading" menu (see chapter 15.2). Once you have enabled the automatic acquisition of environmental data you will have to specify the name or IP address of the host computer on which the external application is running (this may be the same computer on which Calibry resides). In addition, you will have to specify the port to be used for communication between Calibry and the external application.

The external application needs to monitor the specified port for data requests issued by Calibry, and supply the requested data in a specified format.

The following steps take place in the course of automatic data acquisition:

1. The user launches a calibration within Calibry.
2. Calibry attempts to communicate with the external application.
3. The external application accepts the communication request.
4. Calibry asks the external application for the environmental data.
5. The external application transmits the requested data to Calibry.
6. Calibry terminates communication with the external application.
7. Calibry displays the acquired data in the calibration dialog.

When a calibration is launched, Calibry sends a **request for environmental data** via the selected port to the appropriate host, using the following format:

**<bal> m="r"><dv<div data-bbox="80 472 937 652" data-label="Table">

Component of the request	Meaning
<bal> m="r">	Prefix of the request
<dv<	The device number corresponds to the "Internal ID" of the balance used for the current calibration (this is a number in the range of 1 to 16, or "None"), see chapter 4.1. If Calibry runs in "demo mode" (chapter 14) the device number is "None".
<dsn> serial number	Serial number of the balance used for the current calibration. If Calibry runs in "demo mode" (chapter 14) the serial number is "Test".
<loc> location	"Location" of the balance used for the current calibration. If no location was specified when defining the balance, this item remains empty.

Note: In case of cluster of several MCP units, only the data of one unit will be transmitted.

Example of a request: **<bal> m="r"><dv<**

Calibry waits 5 seconds for a response from the external application. When this period is exceeded, an error message will appear. In this case enter the environmental parameters manually.

The **response sent by the external application** must be in the following format:

<bal> m="r"><tea>air temperature;SN<tew>water temperature;SN<hgr>relative humidity;SN<prs>barometric pressure;SN

Component of the response	Meaning
<bal> m="r">	Prefix of the response (same prefix as used with the request).
<tea>air temperature;SN	Air temperature in °C and serial number of the thermometer that supplied the value.
<tew>water temperature;SN	Water temperature in °C and serial number of the thermometer that supplied the value.
<hgr>relative humidity;SN	Relative humidity in % and serial number of the hygrometer that supplied the value.
<prs>barometric pressure;SN	Barometric pressure in kPa and serial number of the barometer that supplied the value.

With the exception of the prefix (<bal> m="r">) all further components of the response are optional, i.e. they are sent only if the respective values are available.

Example of a response: <bal> m="r"><tea>21.5;T544878<tew>21.3;T544881<hgr>55.2;H622471<prs>95.1;B224842

Once Calibry has received the environmental data from the external application they will be displayed in the "Environment" section of the calibration dialog. **Note:** The environmental data acquired automatically from an external application may still be modified manually, if required.

16.4 Exporting data in XML format

The calibration reports created by Calibry can be exported in XML format. This data can be further processed by any application that supports the import of XML data. The exported data is very extensive and contains much more information than the reports created by Calibry.

To export Calibry report data in XML format open the report to be exported and then click on the **"Export to XML"** option found in the **"File"** menu. For the file name suggests "Report.xml".

For importing and formatting XML data please consult the documentation that came with the respective application. The following table provides the complete data structure found in the XML file exported by Calibry, together with a brief description of the data.

Note: All documents created and used with programs which are not included in Calibry have to be validated by the user and are not supported by MMETTLER TOLEDO.

Group	Subgroup 1	Subgroup 2	Subgroup 3	Subgroup 4	XML element	Description
	(Notes)					
Contact	(This block of data is present 3 times, for "Owner", "Delivery" and "Invoice")					
					Type	"Owner", "Delivery", "Invoice"
					ID	Internal identification
					NO	Customer number
					Company	Company name
					LastName	Family name
					FirstName	First name
					Department	Department
					Address	Address
					Stat	State
					ZIP	ZIP code
					City	City
					Phone	Phone number
					Fax	Fax number
					EMail	E-mail address
Pipette	(This block of data is present only once, as there is just 1 pipette per report)					
					ID	Internal identification
					SN	Serial number of the pipette
					SndID	Second identification
					Name	Name of the pipette
					RangeMax	Maximum volume of the pipette [μ l]
					RangeMin	Minimum volume of the pipette [μ l]
					Description	Pipette type
					Manufacturer	Manufacturer of the pipette
					Channel	Number of pipette channels
					ISOClass	ISO class of the pipette (0 = Unknown, 1 = Type A, 2 = Type D1, 3 = Type D2, 4 = Motor driven burette, 5 = Hand driven burette)
					PipetteAlphaC	Cubic expansion coefficient of the pipette [$1/^{\circ}$ C]
					PipetteUAlphaC	Uncertainty of the cubic expansion coefficient [$1/^{\circ}$ C]

Group	Subgroup 1	Subgroup 2	Subgroup 3	Subgroup 4	XML element	Description
	(Notes)					
Method						
					ID	Internal identification
					Name	Name of the test method
					Description	Description of the test method
					NBVol	Number of volumes to be checked
					CalibrationType	Selected calibration mode (0 = Calibration, 1 = Calibration with inspection, 2 = Calibration with inspection and "As found" data)
					Channel	Number of pipette channels to be checked
					ToleranceChoice	Selected tolerance mode (0 = Manual, 1 = ISO Type A, 2 = ISO Type D1, 3 = ISO Type D2, 4 = ISO Motor driven burette, 5 = ISO Hand driven burette, 10 = Manufacturer)
					FactorSE	"Systematic Error" factor for "As Returned" measurements
					FactorRE	"Random Error" factor for "As Returned" measurements
					FactorAFSE	"Systematic Error" factor for "As Found" measurements
					FactorAFRE	"Random Error" factor for "As Found" measurement
	Sample	(Block of data is present 5 times, 1 block of data per volume)				
					VolumeNo	Volume selected for calibration (1, 2, 3, 4, 5)
					VolumeID	Internal volume identification
					Volume	Defined volume [µl]
					Reading	Defined number of "As Returned" measurements
					AFReading	Defined number of "As Found" measurements
					SE	Admissible "Systematic Error" [%]
					RE	Admissible "Random Error" [%]
Calibration Data						
					ID	Internal identification
					NoBalance	Indicates whether calibration was done with balance or in demo mode (0 = with balance, -1 = demo mode)
					AsFoundPossible	Indicates whether or not the "As Found" measurement was carried out (-1 = measurement not possible, 0 = measurement possible)
					NextDue	Next calibration date for the current Pipette
					UserController	Name of the user who counter-signed the report
					Notice	Notice on calibration
	Inspection					
					NBClause	Number of pipette defects selected

Group	Subgroup 1	Subgroup 2	Subgroup 3	Subgroup 4	XML element	Description
	(Notes)					
		Clause	(1 block of data per pipette defect)			
					ClauseNo	Number of the pipette defect
					Text	Description of the pipette defect
	Correction					
					NBClause	Number of measures taken for defect elimination
		Clause	(1 block of data per measure taken for defect elimination)			
					ClauseNo	Number of the measure taken for defect elimination
					Text	Description of the measure taken for defect elimination
	Test	(2 blocks of data, for "As Found" and "As Returned")				
					Type	Type of measurement ("As Returned" or "As Found")
					OrderNumber	Reference number of the calibration (same for "As Found" and "As Returned")
					Tips	Pipette tip used
					TipsAlphaC	Cubic expansion coefficient of the pipette tip used [1/°C]
					TipsUalphaC	Uncertainty of the cubic expansion coefficient of the pipette tip used [1/°C]
					Date	Date and time of calibration
					UserName	Name of the user who carried out the measurement
					ZFactor	Z factor [µl/mg]
					Evaporation	Evaporation factor [µl/measuring cycle]
					EvaporationError	Uncertainty of the evaporation factor [µl/measuring cycle]
					Undo	Measurements cancelled ("Undo"): The particular measurements are separated by tabs; 1st digit = Number of the volume, 2nd and 3rd digit = Number of the measurement followed by the reason for cancelling
		Environment	(2 blocks of data, one before and one after calibration)			
					Time	Indicates whether the following data has been acquired (or entered) before or after calibration
					Pressure	Barometric pressure [hPa]
					DevicePressure	Serial number of the barometer used
					TemperatureAir	Air temperature [°C]
					DeviceTemperatureAir	Serial number of the thermometer used for air temperature measurement
					TemperatureWater	Water temperature [°C]
					DeviceTemperatureWater	Serial number of the thermometer used for water temperature measurement
					Humidity	Relative humidity [%RH]
					DeviceHumidity	Serial number of the hygrometer used

Group	Subgroup 1	Subgroup 2	Subgroup 3	Subgroup 4	XML element	Description
	(Notes)					
		TestData	(Block of data is present 5 times, 1 block of data per volume)			
			Volume			
					VolumeNo	Measured volume (1, 2, 3, 4, 5)
			Reading			
					ReadingNo	Number of the measurement (value is between 1 and the number of measurements specified in the test method)
					Balance	Serial number of the balance used for the current measurement
				Channel	(1 block of data for every pipette channel specified in the test method)	
					ChannelNo	Number of the pipette channel
					Weight	Weight value of the measurement (already compensated by the evaporation factor) [mg]
			Statistics			
				Channel	(1 block of data for every pipette channel specified in the test method)	
					ChannelNo	Number of the pipette channel
					Mean	Mean value of volume measurement [μ l]
					SEul	Absolute "Systematic Error" [μ l]
					SE	Relative "Systematic Error" [%]
					REul	Absolute "Random Error" [μ l]
					RE	Relative "Random Error" [%]
Device						
	Balance	(2 blocks of data, for "As Found" and "As Returned")				
					Used	Type of measurement the balance was used for ("As Returned" or "As Found")
					ID	Internal identification of the unit
					SN	Serial number of the balance
					Name	Designation of the balance
					IID	Internal ID of the balance
					Location	Location of the balance
					Sensibility	Calculated readability [g]
					CalDate	Date of last adjustment
					CalCertificate	Number of adjustment certificate
					CalNotice	Note on adjustment
					ErrorMode	Error mode for adjustment values (0 = none, 1 = Random Error and Systematic Error, 2 = 2AB)
					Alpha	1st coefficient for adjustment errors (Alpha/SE)
					Beta	2nd coefficient for adjustment errors (Beta/RE)
					A	3rd coefficient for adjustment errors (A)
					B	4th coefficient for adjustment errors (B)
	Thermometer	(2 blocks of data, for "As Found" and "As Returned")				
					Used	Type of measurement the thermometer was used for ("As Returned" or "As Found")
					ID	Internal identification of the unit

Group	Subgroup 1	Subgroup 2	Subgroup 3	Subgroup 4	XML element	Description
	(Notes)					
					SN	Serial number of the thermometer
					CalDate	Date of last adjustment
					ErrorMode	Error mode for adjustment values (0 = none, 1 = Random Error and Systematic Error, 2 = 2AB)
					Alpha	1st coefficient for adjustment errors (Alpha/SE)
					Beta	2nd coefficient for adjustment errors (Beta/RE)
					A	3rd coefficient for adjustment errors (A)
					B	4th coefficient for adjustment errors (B)
					CalCertificate	Number of adjustment certificate
					CalNotice	Note on adjustment
	Barometer	(2 blocks of data, for "As Found" and "As Returned")				
					Used	Type of measurement the barometer was used for ("As Returned" or "As Found")
					ID	Internal identification of the unit
					SN	Serial number of the barometer
					CalDate	Date of last adjustment
					ErrorMode	Error mode for adjustment values (0 = none, 1 = Random Error and Systematic Error, 2 = 2AB)
					Alpha	1st coefficient for adjustment errors (Alpha/SE)
					Beta	2nd coefficient for adjustment errors (Beta/RE)
					A	3rd coefficient for adjustment errors (A)
					B	4th coefficient for adjustment errors (B)
					CalCertificate	Number of adjustment certificate
					CalNotice	Note on adjustment
	Hygrometer	(2 blocks of data, for "As Found" and "As Returned")				
					Used	Type of measurement the hygrometer was used for ("As Returned" or "As Found")
					ID	Internal identification of the unit
					SN	Serial number of the hygrometer
					CalDate	Date of last adjustment
					ErrorMode	Error mode for adjustment values (0 = none, 1 = Random Error and Systematic Error, 2 = 2AB)
					Alpha	1st coefficient for adjustment errors (Alpha/SE)
					Beta	2nd coefficient for adjustment errors (Beta/RE)
					A	3rd coefficient for adjustment errors (A)
					B	4th coefficient for adjustment errors (B)
					CalCertificate	Number of adjustment certificate
					CalNotice	Note on adjustment
Default Settings						
					PipetteAlphaC	Default cubic expansion coefficient for pipettes set up in Calibry [1/°C]
					TipsAlphaC	Default cubic expansion coefficient for pipette tips set up in Calibry [1/°C]

16.5 Exporting data in Microsoft Office® format

The Calibry calibration reports can be exported to Microsoft Word® or Microsoft Excel®. This way you may design your reports to conform with standards set up by your local accreditation body. Exporting data to Word allows for detailed adaptation of the layout while exporting data to Excel is primarily used for further data processing. The table below lists all data fields that are exported. The exported data is very extensive and provides much more information than the reports created and displayed by Calibry.

Before exporting data from Calibry to Excel or Word you will have to create a template to accommodate the data in the respective application (*.dot" file for Word or *.xlt" file for Excel). In Word the exported data is assigned via text form fields while in Excel this is accomplished with cell or range names. For detailed information please refer to the documentation that came with Word or Excel. The field names to be used are shown in the table below.

For exporting data, first open the calibration report to be exported in Calibry. Then select **Export to MS Office** from the **File** menu. You may now choose whether to export the data to a Word or Excel template, then select the appropriate template from the file dialog. After confirmation, Calibry starts the appropriate application and exports the data to the template.

Note: All documents created and used by applications not being part of the Calibry package must be validated by the user and are not supported by METTLER TOLEDO.

Field name	Description
Contact	Contact data
<i>OwnerClientNumber</i>	Client number ("Owner")
<i>OwnerCompany</i>	Company name ("Owner")
<i>OwnerLastname</i>	Family name ("Owner")
<i>OwnerFirstname</i>	First name ("Owner")
<i>OwnerDepartement</i>	Department ("Owner")
<i>OwnerAddress</i>	Address ("Owner")
<i>OwnerState</i>	State ("Owner")
<i>OwnerZIPCode</i>	ZIP code ("Owner")
<i>OwnerCity</i>	City ("Owner")
<i>OwnerPhone</i>	Phone number ("Owner")
<i>OwnerFax</i>	Fax number ("Owner")
<i>OwnerEMail</i>	E-mail address ("Owner")
<i>DelClientNumber</i>	Client number ("Delivery")
<i>DelCompany</i>	Company name ("Delivery")
<i>DelLastname</i>	Family name ("Delivery")
<i>DelFirstname</i>	First name ("Delivery")
<i>DelDepartement</i>	Department ("Delivery")
<i>DelAddress</i>	Address ("Delivery")
<i>DelState</i>	State ("Delivery")
<i>DelZIPCode</i>	ZIP code ("Delivery")
<i>DelCity</i>	City ("Delivery")
<i>DelPhone</i>	Phone number ("Delivery")
<i>DelFax</i>	Fax number ("Delivery")
<i>DelEMail</i>	E-mail address ("Delivery")
<i>FactClientNumber</i>	Client number ("Invoice")
<i>FactCompany</i>	Company name ("Invoice")
<i>FactLastname</i>	Family name ("Invoice")
<i>FactFirstname</i>	First name ("Invoice")
<i>FactDepartement</i>	Department ("Invoice")
<i>FactAddress</i>	Address ("Invoice")
<i>FactState</i>	State ("Invoice")
<i>FactZIPCode</i>	ZIP code ("Invoice")
<i>FactCity</i>	City ("Invoice")

Field name	Description
<i>FactPhone</i>	Phone number ("Invoice")
<i>FactFax</i>	Fax number ("Invoice")
<i>FactEMail</i>	E-mail address ("Invoice")
Pipette	Pipette data
<i>PipetteSerieNumber</i>	Serial number of the pipette
<i>PipetteName</i>	Pipette name
<i>PipetteSndID</i>	Second identification of the pipette
<i>PipetteRangeMax</i>	Maximum volume of the pipette in microliters
<i>PipetteRangeMin</i>	Minimum volume of the pipette in microliters
<i>PipetteDescription</i>	Pipette type
<i>PipetteManufacturer</i>	Pipette manufacturer
<i>PipetteChannelCount</i>	Number of pipette channels
<i>PipetteISOClass</i>	ISO Class of the pipette (0 = unknown, 1 = ISOPistonTypeA, 2 = ISOPistonTypeD1, 3 = ISOPistonTypeD2, 4 = ISOMotorBurettes, 5 = ISOHandBurettes)
<i>PipetteAlphaC</i>	Cubic expansion coefficient of the pipette [$1/^{\circ}\text{C}$]
<i>PipetteAlphaCUncert</i>	Uncertainty of the cubic expansion coefficient [$1/^{\circ}\text{C}$]
Method	Test method data
<i>MethodName</i>	Name of the test method
<i>MethodDescription</i>	Description of the test method
<i>MethodVolumeCount</i>	Number of volumes to be measured
<i>MethodCalType</i>	Selected calibration mode
<i>MethodChannelCount</i>	Number of pipette channels to be calibrated
<i>MethodChannelList</i>	Pipette channels to be calibrated
<i>MethodToleranceChoice</i>	Selected tolerance mode (0 = User-defined, 1 = ISOPistonTypeA, 2 = ISOPistonTypeD1, 3 = ISOPistonTypeD2, 4 = ISOMotorBurettes, 5 = ISOHandBurettes, 10 = Manufacturer)
<i>MethodAFFactorSE</i>	"Systematic Error" factor for "As Found" measurements
<i>MethodARFactorSE</i>	"Systematic Error" factor for "As Returned" measurements
<i>MethodAFFactorRE</i>	"Random Error" factor for "As Found" measurements
<i>MethodARFactorRE</i>	"Random Error" factor for "As Returned" measurements
Volume	Measuring parameters per volume ("X" designates the volume, 1 – 5)
<i>MethodVolX_MicroLiter</i>	Defined volume in microliters
<i>MethodVolX_AFRreading</i>	Selected number of "As Found" measurements
<i>MethodVolX_ARReading</i>	Selected number of "As Returned" measurements
<i>MethodVolX_ARReISE</i>	Admissible relative "Systematic Error" for the "As Returned" measurement [%]
<i>MethodVolX_ARReIRE</i>	Admissible relative "Random Error" for the "As Returned" measurement [%]
<i>MethodVolX_AFRReISE</i>	Admissible relative "Systematic Error" for the "As Found" measurement [%]
<i>MethodVolX_AFRReIRE</i>	Admissible relative "Random Error" for the "As Found" measurement [%]
<i>MethodVolX_ARAbsSE</i>	Admissible absolute "Systematic Error" for the "As Returned" measurement [μl]
<i>MethodVolX_ARAbsRE</i>	Admissible absolute "Random Error" for the "As Returned" measurement [μl]
<i>MethodVolX_AFAbsSE</i>	Admissible absolute "Systematic Error" for the "As Found" measurement [μl]
<i>MethodVolX_AFAbsRE</i>	Admissible absolute "Random Error" for the "As Found" measurement [μl]

Field name	Description
Environmental Condition	Ambient conditions
<i>AFAirTempStart</i>	Air temperature at start of the "As Found" measurement [°C]
<i>AFWaterTempStart</i>	Water temperature at start of the "As Found" measurement [°C]
<i>AFHumidityStart</i>	Humidity at start of the "As Found" measurement [% rH]
<i>AFPressureStart</i>	Barometric pressure at start of the "As Found" measurement [hPa]
<i>AFZFactor</i>	Z factor for "As Found" measurement [µl/mg]
<i>AFEvaporation</i>	Evaporation factor for "As Found" measurement [ml/cycle]
<i>AFEvaporationError</i>	Uncertainty of the evaporation factor for "As Found" measurement [µl/cycle]
<i>ARAirTempStart</i>	Air temperature at start of the "As Returned" measurement [°C]
<i>ARWaterTempStart</i>	Water temperature at start of the "As Returned" measurement [°C]
<i>ARHumidityStart</i>	Humidity at start of the "As Returned" measurement [% rH]
<i>ARPressureStart</i>	Barometric pressure at start of the "As Returned" measurement [hPa]
<i>ARZFactor</i>	Z factor for "As Returned" measurement [µl/mg]
<i>AREvaporation</i>	Evaporation factor for "As Returned" measurement [ml/cycle]
<i>AREvaporationError</i>	Uncertainty of the evaporation factor for "As Returned" measurement [µl/cycle]
<i>AFAirTempEnd</i>	Air temperature at the end of the "As Found" measurement [°C]
<i>AFWaterTempEnd</i>	Water temperature at the end of the "As Found" measurement [°C]
<i>AFHumidityEnd</i>	Humidity at the end of the "As Found" measurement [% rH]
<i>AFPressureEnd</i>	Barometric pressure at the end of the "As Found" measurement [hPa]
<i>ARAirTempEnd</i>	Air temperature at the end of the "As Returned" measurement [°C]
<i>ARWaterTempEnd</i>	Water temperature at the end of the "As Returned" measurement [°C]
<i>ARHumidityEnd</i>	Humidity at the end of the "As Returned" measurement [% rH]
<i>ARPressureEnd</i>	Barometric pressure at the end of the "As Returned" measurement [hPa]
Devices	Instrument data
<i>AFBalanceName</i>	Type of balance used for "As Found" measurements
<i>AFBalanceSN</i>	Serial number of balance used for "As Found" measurements
<i>AFBalanceLocation</i>	Location of the balance used for "As Found" measurements
<i>AFBalanceSensibility</i>	Readability of the balance used for "As Found" measurements
<i>AFBalanceCalDate</i>	Last adjustment date of the balance used for "As Found" measurements
<i>AFBalanceCalCert</i>	Number of the adjustment certificate of the balance used for "As Found" measurements
<i>AFBalanceCalNote</i>	Note on adjustment for the balance used for "As Found" measurements
<i>AFBalanceErrorMode</i>	Error mode for adjustment values of the balance used for "As Found" measurements ("disabled" = none, "SE and RE" = Random Error and Systematic Error, "2AB" = 2AB)
<i>AFBalanceAlpha</i>	1st coefficient for adjustment errors (Alpha or SE) of the balance used for "As Found" measurements
<i>AFBalanceBeta</i>	2nd coefficient for adjustment errors (Beta or RE) of the balance used for "As Found" measurements
<i>AFBalanceA</i>	3rd coefficient for adjustment errors (A) of the balance used for "As Found" measurements
<i>AFBalanceB</i>	4th coefficient for adjustment errors (B) of the balance used for "As Found" measurements
<i>ARBalanceName</i>	Type of balance used for "As Returned" measurements
<i>ARBalanceSN</i>	Serial number of balance used for "As Returned" measurements
<i>ARBalanceLocation</i>	Location of the balance used for "As Returned" measurements
<i>ARBalanceSensibility</i>	Readability of the balance used for "As Returned" measurements
<i>ARBalanceCalDate</i>	Last adjustment date of the balance used for "As Returned" measurements
<i>ARBalanceCalCert</i>	Number of the adjustment certificate of the balance used for "As Returned" measurements
<i>ARBalanceCalNote</i>	Note on adjustment for the balance used for "As Returned" measurements
<i>ARBalanceErrorMode</i>	Error mode for adjustment values of the balance used for "As Returned" measurements ("disabled" = none, "SE and RE" = Random Error and Systematic Error, "2AB" = 2AB)

Field name	Description
<i>ARBalanceAlpha</i>	1st coefficient for adjustment errors (Alpha or SE) of the balance used for "As Returned" measurements
<i>ARBalanceBeta</i>	2nd coefficient for adjustment errors (Beta or RE) of the balance used for "As Returned" measurements
<i>ARBalanceA</i>	3rd coefficient for adjustment errors (A) of the balance used for "As Returned" measurements
<i>ARBalanceB</i>	4th coefficient for adjustment errors (B) of the balance used for "As Returned" measurements
<i>AFSAirThermSN</i>	Serial number of the air temperature thermometer used at start of the "As Found" measurements
<i>AFSAirThermCalDate</i>	Last adjustment date of the air temperature thermometer used at start of the "As Found" measurements
<i>AFSAirThermErrorMode</i>	Error mode for adjustment values of the air temperature thermometer used at start of the "As Found" measurements ("disabled" = none, "SE and RE" = Random Error and Systematic Error, "2AB" = 2AB)
<i>AFSAirThermAlpha</i>	1st coefficient for adjustment errors (Alpha or SE) of the air temperature thermometer used at start of the "As Found" measurements
<i>AFSAirThermBeta</i>	2nd coefficient for adjustment errors (Beta or RE) of the air temperature thermometer used at start of the "As Found" measurements
<i>AFSAirThermA</i>	3rd coefficient for adjustment errors (A) of the air temperature thermometer used at start of the "As Found" measurements
<i>AFSAirThermB</i>	4th coefficient for adjustment errors (B) of the air temperature thermometer used at start of the "As Found" measurements
<i>AFSAirThermCalCert</i>	Number of the adjustment certificate of the air temperature thermometer used at start of the "As Found" measurements
<i>AFSAirThermCalNote</i>	Note on adjustment for the air temperature thermometer used at start of the "As Found" measurements
<i>AFEAirThermSN</i>	Serial number of the air temperature thermometer used at the end of the "As Found" measurements
<i>AFEAirThermCalDate</i>	Last adjustment date of the air temperature thermometer used at the end of the "As Found" measurements
<i>AFEAirThermErrorMode</i>	Error mode for adjustment values of the air temperature thermometer used at the end of the "As Found" measurements ("disabled" = none, "SE and RE" = Random Error and Systematic Error, "2AB" = 2AB)
<i>AFEAirThermAlpha</i>	1st coefficient for adjustment errors (Alpha or SE) of the air temperature thermometer used at the end of the "As Found" measurements
<i>AFEAirThermBeta</i>	2nd coefficient for adjustment errors (Beta or RE) of the air temperature thermometer used at the end of the "As Found" measurements
<i>AFEAirThermA</i>	3rd coefficient for adjustment errors (A) of the air temperature thermometer used at the end of the "As Found" measurements
<i>AFEAirThermB</i>	4th coefficient for adjustment errors (B) of the air temperature thermometer used at the end of the "As Found" measurements
<i>AFEAirThermCalCert</i>	Number of the adjustment certificate of the air temperature thermometer used at the end of the "As Found" measurements
<i>AFEAirThermCalNote</i>	Note on adjustment for the air temperature thermometer used at the end of the "As Found" measurements
<i>ARSAirThermSN</i>	Serial number of the air temperature thermometer used at start of the "As Returned" measurements
<i>ARSAirThermCalDate</i>	Last adjustment date of the air temperature thermometer used at start of the "As Returned" measurements
<i>ARSAirThermErrorMode</i>	Error mode for adjustment values of the air temperature thermometer used at start of the "As Returned" measurements ("disabled" = none, "SE and RE" = Random Error and Systematic Error, "2AB" = 2AB)

Field name	Description
<i>ARSAirThermAlpha</i>	1st coefficient for adjustment errors (Alpha or SE) of the air temperature thermometer used at start of the "As Returned" measurements
<i>ARSAirThermBeta</i>	2nd coefficient for adjustment errors (Beta or RE) of the air temperature thermometer used at start of the "As Returned" measurements
<i>ARSAirThermA</i>	3rd coefficient for adjustment errors (A) of the air temperature thermometer used at start of the "As Returned" measurements
<i>ARSAirThermB</i>	4th coefficient for adjustment errors (B) of the air temperature thermometer used at start of the "As Returned" measurements
<i>ARSAirThermCalCert</i>	Number of the adjustment certificate of the air temperature thermometer used at start of the "As Returned" measurements
<i>ARSAirThermCalNote</i>	Note on adjustment for the air temperature thermometer used at start of the "As Returned" measurements
<i>AREAirThermSN</i>	Serial number of the air temperature thermometer used at the end of the "As Returned" measurements
<i>AREAirThermCalDate</i>	Last adjustment date of the air temperature thermometer used at the end of the "As Returned" measurements
<i>AREAirThermErrorMode</i>	Error mode for adjustment values of the air temperature thermometer used at the end of the "As Returned" measurements ("disabled" = none, "SE and RE" = Random Error and Systematic Error, "2AB" = 2AB)
<i>AREAirThermAlpha</i>	1st coefficient for adjustment errors (Alpha or SE) of the air temperature thermometer used at the end of the "As Returned" measurements
<i>AREAirThermBeta</i>	2nd coefficient for adjustment errors (Beta or RE) of the air temperature thermometer used at the end of the "As Returned" measurements
<i>AREAirThermA</i>	3rd coefficient for adjustment errors (A) of the air temperature thermometer used at the end of the "As Returned" measurements
<i>AREAirThermB</i>	4th coefficient for adjustment errors (B) of the air temperature thermometer used at the end of the "As Returned" measurements
<i>AREAirThermCalCert</i>	Number of the adjustment certificate of the air temperature thermometer used at the end of the "As Returned" measurements
<i>AREAirThermCalNote</i>	Note on adjustment for the air temperature thermometer used at the end of the "As Returned" measurements
<i>AFSWaterThermSN</i>	Serial number of the water temperature thermometer used at start of the "As Found" measurements
<i>AFSWaterThermCalDate</i>	Last adjustment date of the water temperature thermometer used at start of the "As Found" measurements
<i>AFSWaterThermErrorMode</i>	Error mode for adjustment values of the water temperature thermometer used at start of the "As Found" measurements ("disabled" = none, "SE and RE" = Random Error and Systematic Error, "2AB" = 2AB)
<i>AFSWaterThermAlpha</i>	1st coefficient for adjustment errors (Alpha or SE) of the water temperature thermometer used at start of the "As Found" measurements
<i>AFSWaterThermBeta</i>	2nd coefficient for adjustment errors (Beta or RE) of the water temperature thermometer used at start of the "As Found" measurements
<i>AFSWaterThermA</i>	3rd coefficient for adjustment errors (A) of the water temperature thermometer used at start of the "As Found" measurements
<i>AFSWaterThermB</i>	4th coefficient for adjustment errors (B) of the water temperature thermometer used at start of the "As Found" measurements
<i>AFSWaterThermCalCert</i>	Number of the adjustment certificate of the water temperature thermometer used at start of the "As Found" measurements
<i>AFSWaterThermCalNote</i>	Note on adjustment for the water temperature thermometer used at start of the "As Found" measurements
<i>AFEWaterThermSN</i>	Serial number of the water temperature thermometer used at the end of the "As Found" measurements

Field name	Description
<i>AFEWaterThermCalDate</i>	Last adjustment date of the water temperature thermometer used at the end of the "As Found" measurements
<i>AFEWaterThermErrorMode</i>	Error mode for adjustment values of the water temperature thermometer used at the end of the "As Found" measurements ("disabled" = none, "SE and RE" = Random Error and Systematic Error, "2AB" = 2AB)
<i>AFEWaterThermAlpha</i>	1st coefficient for adjustment errors (Alpha or SE) of the water temperature thermometer used at the end of the "As Found" measurements
<i>AFEWaterThermBeta</i>	2nd coefficient for adjustment errors (Beta or RE) of the water temperature thermometer used at the end of the "As Found" measurements
<i>AFEWaterThermA</i>	3rd coefficient for adjustment errors (A) of the water temperature thermometer used at the end of the "As Found" measurements
<i>AFEWaterThermB</i>	4th coefficient for adjustment errors (B) of the water temperature thermometer used at the end of the "As Found" measurements
<i>AFEWaterThermCalCert</i>	Number of the adjustment certificate of the water temperature thermometer used at the end of the "As Found" measurements
<i>AFEWaterThermCalNote</i>	Note on adjustment for the water temperature thermometer used at the end of the "As Found" measurements
<i>ARSWaterThermSN</i>	Serial number of the water temperature thermometer used at start of the "As Returned" measurements
<i>ARSWaterThermCalDate</i>	Last adjustment date of the water temperature thermometer used at start of the "As Returned" measurements
<i>ARSWaterThermErrorMode</i>	Error mode for adjustment values of the water temperature thermometer used at start of the "As Returned" measurements ("disabled" = none, "SE and RE" = Random Error and Systematic Error, "2AB" = 2AB)
<i>ARSWaterThermAlpha</i>	1st coefficient for adjustment errors (Alpha or SE) of the water temperature thermometer used at start of the "As Returned" measurements
<i>ARSWaterThermBeta</i>	2nd coefficient for adjustment errors (Beta or RE) of the water temperature thermometer used at start of the "As Returned" measurements
<i>ARSWaterThermA</i>	3rd coefficient for adjustment errors (A) of the water temperature thermometer used at start of the "As Returned" measurements
<i>ARSWaterThermB</i>	4th coefficient for adjustment errors (B) of the water temperature thermometer used at start of the "As Returned" measurements
<i>ARSWaterThermCalCert</i>	Number of the adjustment certificate of the water temperature thermometer used at start of the "As Returned" measurements
<i>ARSWaterThermCalNote</i>	Note on adjustment for the water temperature thermometer used at start of the "As Returned" measurements
<i>AREWaterThermSN</i>	Serial number of the water temperature thermometer used at the end of the "As Returned" measurements
<i>AREWaterThermCalDate</i>	Last adjustment date of the water temperature thermometer used at the end of the "As Returned" measurements
<i>AREWaterThermErrorMode</i>	Error mode for adjustment values of the water temperature thermometer used at the end of the "As Returned" measurements ("disabled" = none, "SE and RE" = Random Error and Systematic Error, "2AB" = 2AB)
<i>AREWaterThermAlpha</i>	1st coefficient for adjustment errors (Alpha or SE) of the water temperature thermometer used at the end of the "As Returned" measurements
<i>AREWaterThermBeta</i>	2nd coefficient for adjustment errors (Beta or RE) of the water temperature thermometer used at the end of the "As Returned" measurements
<i>AREWaterThermA</i>	3rd coefficient for adjustment errors (A) of the water temperature thermometer used at the end of the "As Returned" measurements
<i>AREWaterThermB</i>	4th coefficient for adjustment errors (B) of the water temperature thermometer used at the end of the "As Returned" measurements

Field name	Description
<i>AREWaterThermCalCert</i>	Number of the adjustment certificate of the water temperature thermometer used at the end of the "As Returned" measurements
<i>AREWaterThermCalNote</i>	Note on adjustment for the water temperature thermometer used at the end of the "As Returned" measurements
<i>AFSBarSN</i>	Serial number of the barometer used at start of the "As Found" measurements
<i>AFSBarCalDate</i>	Last adjustment date of the barometer used at start of the "As Found" measurements
<i>AFSBarErrorMode</i>	Error mode for adjustment values of the barometer used at start of the "As Found" measurements ("disabled" = none, "SE and RE" = Random Error and Systematic Error, "2AB" = 2AB)
<i>AFSBarAlpha</i>	1st coefficient for adjustment errors (Alpha or SE) of the barometer used at start of the "As Found" measurements
<i>AFSBarBeta</i>	2nd coefficient for adjustment errors (Beta or RE) of the barometer used at start of the "As Found" measurements
<i>AFSBarA</i>	3rd coefficient for adjustment errors (A) of the barometer used at start of the "As Found" measurements
<i>AFSBarB</i>	4th coefficient for adjustment errors (B) of the barometer used at start of the "As Found" measurements
<i>AFSBarCalCert</i>	Number of the adjustment certificate of the barometer used at start of the "As Found" measurements
<i>AFSBarCalNote</i>	Note on adjustment for the barometer used at start of the "As Found" measurements
<i>AFEBarSN</i>	Serial number of the barometer used at the end of the "As Found" measurements
<i>AFEBarCalDate</i>	Last adjustment date of the barometer used at the end of the "As Found" measurements
<i>AFEBarErrorMode</i>	Error mode for adjustment values of the barometer used at the end of the "As Found" measurements ("disabled" = none, "SE and RE" = Random Error and Systematic Error, "2AB" = 2AB)
<i>AFEBarAlpha</i>	1st coefficient for adjustment errors (Alpha or SE) of the barometer used at the end of the "As Found" measurements
<i>AFEBarBeta</i>	2nd coefficient for adjustment errors (Beta or RE) of the barometer used at the end of the "As Found" measurements
<i>AFEBarA</i>	3rd coefficient for adjustment errors (A) of the barometer used at the end of the "As Found" measurements
<i>AFEBarB</i>	4th coefficient for adjustment errors (B) of the barometer used at the end of the "As Found" measurements
<i>AFEBarCalCert</i>	Number of the adjustment certificate of the barometer used at the end of the "As Found" measurements
<i>AFEBarCalNote</i>	Note on adjustment for the barometer used at the end of the "As Found" measurements
<i>ARSBBarSN</i>	Serial number of the barometer used at start of the "As Returned" measurements
<i>ARSBBarCalDate</i>	Last adjustment date of the barometer used at start of the "As Returned" measurements
<i>ARSBBarErrorMode</i>	Error mode for adjustment values of the barometer used at start of the "As Returned" measurements ("disabled" = none, "SE and RE" = Random Error and Systematic Error, "2AB" = 2AB)
<i>ARSBBarAlpha</i>	1st coefficient for adjustment errors (Alpha or SE) of the barometer used at start of the "As Returned" measurements
<i>ARSBBarBeta</i>	2nd coefficient for adjustment errors (Beta or RE) of the barometer used at start of the "As Returned" measurements
<i>ARSBBarA</i>	3rd coefficient for adjustment errors (A) of the barometer used at start of the "As Returned" measurements
<i>ARSBBarB</i>	4th coefficient for adjustment errors (B) of the barometer used at start of the "As Returned" measurements
<i>ARSBBarCalCert</i>	Number of the adjustment certificate of the barometer used at start of the "As Returned" measurements
<i>ARSBBarCalNote</i>	Note on adjustment for the barometer used at start of the "As Returned" measurements

Field name	Description
<i>AREBAarSN</i>	Serial number of the barometer used at the end of the "As Returned" measurements
<i>AREBarCalDate</i>	Last adjustment date of the barometer used at the end of the "As Returned" measurements
<i>AREBarErrorMode</i>	Error mode for adjustment values of the barometer used at the end of the "As Returned" measurements ("disabled" = none, "SE and RE" = Random Error and Systematic Error, "2AB" = 2AB)
<i>AREBarAlpha</i>	1st coefficient for adjustment errors (Alpha or SE) of the barometer used at the end of the "As Returned" measurements
<i>AREBarBeta</i>	2nd coefficient for adjustment errors (Beta or RE) of the barometer used at the end of the "As Returned" measurements
<i>AREBarA</i>	3rd coefficient for adjustment errors (A) of the barometer used at the end of the "As Returned" measurements
<i>AREBarB</i>	4th coefficient for adjustment errors (B) of the barometer used at the end of the "As Returned" measurements
<i>AREBarCalCert</i>	Number of the adjustment certificate of the barometer used at the end of the "As Returned" measurements
<i>AREBarCalNote</i>	Note on adjustment for the barometer used at the end of the "As Returned" measurements
<i>AFSHygSN</i>	Serial number of the hygrometer used at start of the "As Found" measurements
<i>AFSHygCalDate</i>	Last adjustment date of the hygrometer used at start of the "As Found" measurements
<i>AFSHygErrorMode</i>	Error mode for adjustment values of the hygrometer used at start of the "As Found" measurements ("disabled" = none, "SE and RE" = Random Error and Systematic Error, "2AB" = 2AB)
<i>AFSHygAlpha</i>	1st coefficient for adjustment errors (Alpha or SE) of the hygrometer used at start of the "As Found" measurements
<i>AFSHygBeta</i>	2nd coefficient for adjustment errors (Beta or RE) of the hygrometer used at start of the "As Found" measurements
<i>AFSHygA</i>	3rd coefficient for adjustment errors (A) of the hygrometer used at start of the "As Found" measurements
<i>AFSHygB</i>	4th coefficient for adjustment errors (B) of the hygrometer used at start of the "As Found" measurements
<i>AFSHygCalCert</i>	Number of the adjustment certificate of the hygrometer used at start of the "As Found" measurements
<i>AFSHygCalNote</i>	Note on adjustment for the hygrometer used at start of the "As Found" measurements
<i>AFEHygSN</i>	Serial number of the hygrometer used at the end of the "As Found" measurements
<i>AFEHygCalDate</i>	Last adjustment date of the hygrometer used at the end of the "As Found" measurements
<i>AFEHygErrorMode</i>	Error mode for adjustment values of the hygrometer used at the end of the "As Found" measurements ("disabled" = none, "SE and RE" = Random Error and Systematic Error, "2AB" = 2AB)
<i>AFEHygAlpha</i>	1st coefficient for adjustment errors (Alpha or SE) of the hygrometer used at the end of the "As Found" measurements
<i>AFEHygBeta</i>	2nd coefficient for adjustment errors (Beta or RE) of the hygrometer used at the end of the "As Found" measurements
<i>AFEHygA</i>	3rd coefficient for adjustment errors (A) of the hygrometer used at the end of the "As Found" measurements
<i>AFEHygB</i>	4th coefficient for adjustment errors (B) of the hygrometer used at the end of the "As Found" measurements
<i>AFEHygCalCert</i>	Number of the adjustment certificate of the hygrometer used at the end of the "As Found" measurements
<i>AFEHygCalNote</i>	Note on adjustment for the hygrometer used at the end of the "As Found" measurements
<i>ARSHygSN</i>	Serial number of the hygrometer used at start of the "As Returned" measurements
<i>ARSHygCalDate</i>	Last adjustment date of the hygrometer used at start of the "As Returned" measurements
<i>ARSHygErrorMode</i>	Error mode for adjustment values of the hygrometer used at start of the "As Returned" measurements ("disabled" = none, "SE and RE" = Random Error and Systematic Error, "2AB" = 2AB)

Field name	Description
<i>ARSHygAlpha</i>	1st coefficient for adjustment errors (Alpha or SE) of the hygrometer used at start of the "As Returned" measurements
<i>ARSHygBeta</i>	2nd coefficient for adjustment errors (Beta or RE) of the hygrometer used at start of the "As Returned" measurements
<i>ARSHygA</i>	3rd coefficient for adjustment errors (A) of the hygrometer used at start of the "As Returned" measurements
<i>ARSHygB</i>	4th coefficient for adjustment errors (B) of the hygrometer used at start of the "As Returned" measurements
<i>ARSHygCalCert</i>	Number of the adjustment certificate of the hygrometer used at start of the "As Returned" measurements
<i>ARSHygCalNote</i>	Note on adjustment for the hygrometer used at start of the "As Returned" measurements
<i>AREHygSN</i>	Serial number of the hygrometer used at the end of the "As Returned" measurements
<i>AREHygCalDate</i>	Last adjustment date of the hygrometer used at the end of the "As Returned" measurements
<i>AREHygErrorMode</i>	Error mode for adjustment values of the hygrometer used at the end of the "As Returned" measurements ("disabled" = none, "SE and RE" = Random Error and Systematic Error, "2AB" = 2AB)
<i>AREHygAlpha</i>	1st coefficient for adjustment errors (Alpha or SE) of the hygrometer used at the end of the "As Returned" measurements
<i>AREHygBeta</i>	2nd coefficient for adjustment errors (Beta or RE) of the hygrometer used at the end of the "As Returned" measurements
<i>AREHygA</i>	3rd coefficient for adjustment errors (A) of the hygrometer used at the end of the "As Returned" measurements
<i>AREHygB</i>	4th coefficient for adjustment errors (B) of the hygrometer used at the end of the "As Returned" measurements
<i>AREHygCalCert</i>	Number of the adjustment certificate of the hygrometer used at the end of the "As Returned" measurements
<i>AREHygCalNote</i>	Note on adjustment for the hygrometer used at the end of the "As Returned" measurements
Cal result	Calibration result
<i>ARTip</i>	Pipette tip used for the "As Returned" measurement
<i>ARTipAlpha</i>	Cubic expansion coefficient of the pipette tip used for the "As Returned" measurement [1/°C]
<i>ARTipAlphaUncert</i>	Uncertainty of the cubic expansion coefficient of the pipette tip used for the "As Returned" measurement [1/°C]
<i>ARDate</i>	Date of "As Returned" measurement
<i>ARUserName</i>	Name of the user who carried out the "As Returned" measurement
<i>ARUndoCount</i>	Number of "As Returned" measurements cancelled ("Undo")
<i>ARUndo</i>	Reasons for cancelling "As Returned" measurements (plain text)
<i>AFTip</i>	Pipette tip used for the "As Found" measurement
<i>AFTipAlpha</i>	Cubic expansion coefficient of the pipette tip used for the "As Found" measurement [1/°C]
<i>AFTipAlphaUncert</i>	Uncertainty of the cubic expansion coefficient of the pipette tip used for the "As Found" measurement [1/°C]
<i>AFDate</i>	Date of "As Found" measurement
<i>AFUserName</i>	Name of the user who carried out the "As Found" measurement
<i>AFUndoCount</i>	Number of "As Found" measurements cancelled ("Undo")
<i>AFUndo</i>	Reasons for cancelling "As Found" measurements (plain text)

Field name	Description
<i>AsFoundPossible</i>	Indicates whether or not the "As Found" measurement was carried out ("Yes" or "No")
<i>NextDueDate</i>	Next adjustment date scheduled for the pipette
<i>ReviewerName</i>	Name of the user who counter-signed the report
<i>Notice</i>	Note on calibration
<i>InspectionCount</i>	Number of pipette defects selected
<i>Inspection</i>	Pipette defects selected (plain text)
<i>CorrectionCount</i>	Number of measures taken for defect elimination
<i>Correction</i>	Measures for defect elimination selected (plain text)
<i>OrderNumber</i>	Reference number of calibration
<i>ARVol_ChX_VolY_MZ</i>	Result of "As Returned" measurement as volume value [μ l]
<i>ARW_ChX_VolY_MZ</i>	Result of "As Returned" measurement as weight value [g]
<i>ARBal_ChX_VolY_MZ</i>	Balance used for the "As Returned" measurement (serial number)
<i>AFVol_ChX_VolY_MZ</i>	Result of "As Found" measurement as volume value [μ l]
<i>AFW_ChX_VolY_MZ</i>	Result of "As Found" measurement as weight value [g]
<i>AFBal_ChX_VolY_MZ</i>	Balance used for the "As Found" measurement (serial number)
	X: Number of pipette channel, or "H" for Horizontal or "V" for Vertical, respectively
	Y: Number of volume, or "H" for Horizontal or "V" for Vertical, respectively
	Z: Number of measurement, or "H" for Horizontal or "V" for Vertical, respectively
<i>CertificateNumber</i>	Certificate number
Statistics	Statistical data
<i>AFMean_ChX_VolY</i>	Mean value of "As Found" measurements [μ l] (X = pipette channel, Y = volume)
<i>AFAbsSE_ChX_VolY</i>	Absolute "Systematic Error" of "As Found" measurements [μ l] (X = pipette channel, Y = volume)
<i>AFAbsRE_ChX_VolY</i>	Absolute "Random Error" of "As Found" measurements [μ l] (X = pipette channel, Y = volume)
<i>AFRelSE_ChX_VolY</i>	Relative "Systematic Error" of "As Found" measurements [%] (X = pipette channel, Y = volume)
<i>AFRelRE_ChX_VolY</i>	Relative "Random Error" of "As Found" measurements [%] (X = pipette channel, Y = volume)
<i>AFUncer_ChX_VolY</i>	Uncertainty of "As Found" measurements [μ l] (X = pipette channel, Y = volume)
<i>AFStatus_ChX_VolY</i>	Result of calibration after "As Found" measurements (X = pipette channel, Y = volume)
<i>ARMean_ChX_VolY</i>	Mean value of "As Returned" measurements [μ l] (X = pipette channel, Y = volume)
<i>ARAbsSE_ChX_VolY</i>	Absolute "Systematic Error" of "As Returned" measurements [μ l] (X = pipette channel, Y = volume)
<i>ARAbsRE_ChX_VolY</i>	Absolute "Random Error" of "As Returned" measurements [μ l] (X = pipette channel, Y = volume)
<i>ARRelSE_ChX_VolY</i>	Relative "Systematic Error" of "As Returned" measurements [%] (X = pipette channel, Y = volume)
<i>ARRelRE_ChX_VolY</i>	Relative "Random Error" of "As Returned" measurements [%] (X = pipette channel, Y = volume)
<i>ARUncer_ChX_VolY</i>	Uncertainty of "As Returned" measurements [μ l] (X = pipette channel, Y = volume)
<i>ARStatus_ChX_VolY</i>	Result of calibration after "As Returned" measurements (X = pipette channel, Y = volume)
<i>AFPipetteStatus</i>	Overall status of the pipette upon completion of the "As Found" measurements ("–1" = not required, "0" = not done, "1" = failed, "2" = done/passed)
<i>ARRPipetteStatus</i>	Overall status of the pipette upon completion of the "As Returned" measurements ("–1" = not required, "0" = not done, "1" = failed, "2" = done/passed)

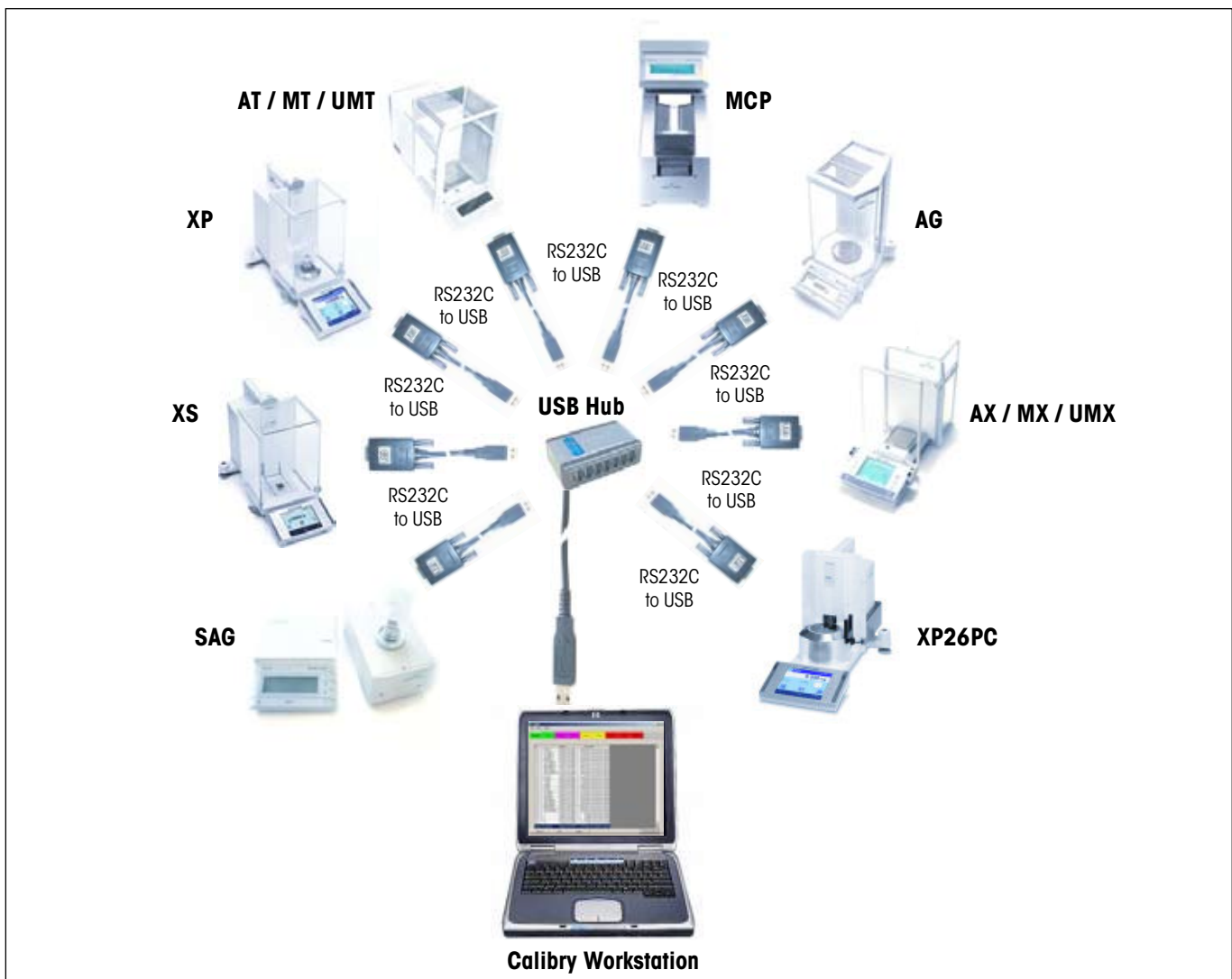
17 Hardware Configuration

The following chapters provide information on the cooperation between Calibry and various METTLER TOLEDO balances. You will learn how to connect several balances to a single Calibry workstation and how to set up the application and the instruments. Calibry is compatible with the following METTLER TOLEDO balances:

- MCP Multichannel Pipette Calibration Systems
- XP26PC Microbalance for Calibrating 1-Channel Pipettes
- XP Precision and Analytical Balances
- XS Precision and Analytical Balances and WX Balances
- SAG Balances
- AG Balances
- AX/MX/UMX Balances
- AT/MT/UMT Balances

17.1 Connecting several balances to a single Calibry workstation

You will need a USB hub for connecting several balances to a single Calibry workstation. Connect the hub to the Calibry workstation. In addition, you will need a RS232C-to-USB converter for each balance to be connected. Connect the USB plug of the converter to the USB hub and the DB9 plug to the RS232C interface of the balance. **Note:** This also applies to balances that do not have a RS232C interface. However, in this case you will need additional accessories to connect the balance interface to the DB9 plug of the USB converter (for details please refer to the information given in the next chapters). The figure below provides a basic overview of a multi-balance configuration.



17.2 Calibry and MCP single unit

This chapter provides information on how to use Calibry in conjunction with the MCP Multichannel Pipette Calibration System by METTLER TOLEDO, used in **single unit configuration**. The MCP is equipped with a serial RS232C interface that is to be connected to the Calibry workstation as shown below. Before establishing the connection make sure the computer and the MCP are switched off.

Connection



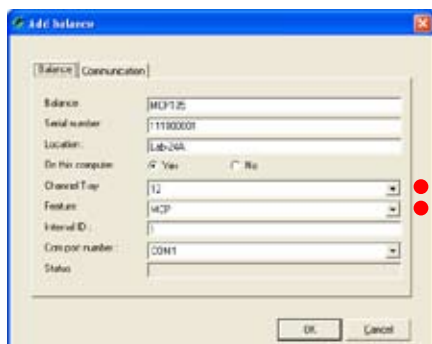
USB-to-RS232 converter cable (11103691)



Setting up the MCP

1. First verify the software version of the MCP. The version number shows up briefly when switching on the unit. The second number should be "1.40" or higher. If this is not the case, you will have to install the V1.40 (or higher) program cartridge (11138300).
2. If the display of the MCP shows the "do Cal" message, proceed to container calibration as explained in the MCP operating instructions. No pipette calibration is possible while the "do Cal" message is displayed and Calibry will report that the balance is not operational (red balance symbol).

Setting up Calibry



Usually, Calibry will detect the MCP automatically, otherwise add the MCP as a new balance as shown in the example to the left (see chapter 4.1).

The settings marked with a red dot are mandatory while the other settings may be modified to match your local conditions.

In the "Options/Configuration/Balance/MCP" menu (see chapter 15.2) set the "**Process adapter**" parameter to "0". In the same menu you may define further settings for the MCP, as needed (you may even advise Calibry to inform you when the instrument is due for adjustment).

The number of pipette channels to be calibrated is defined when setting up a test method (chapter 7).



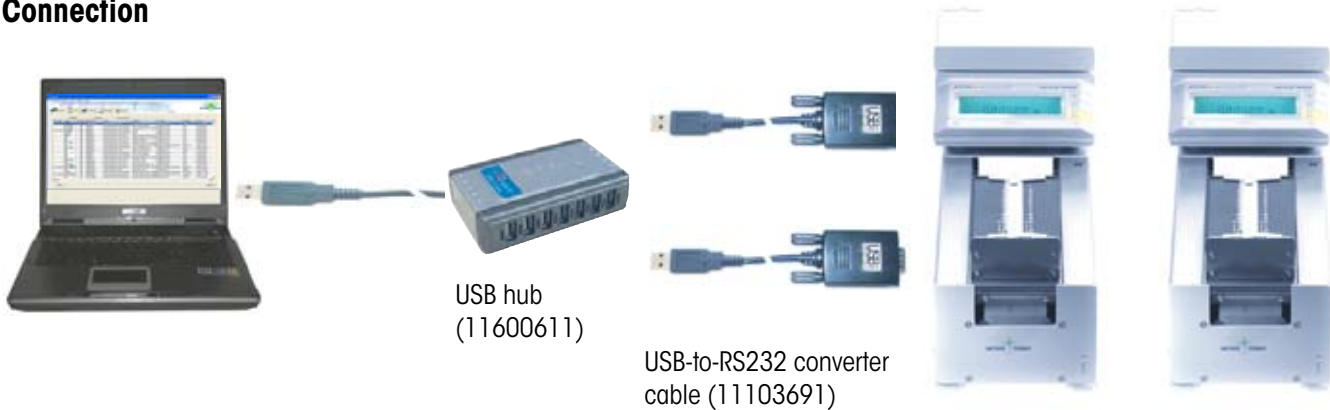
Notes on operation

The measured values are transmitted to Calibry when the «Start» key of the MCP is pressed. The entire pipette calibration workflow is controlled by Calibry.

17.3 Calibry and a cluster of MCP units

This chapter provides information on how to use Calibry in conjunction with a **cluster** of MCP Multichannel Pipette Calibration Systems by METTLER TOLEDO. All MCPs are equipped with a serial RS232C interface that is to be connected to the Calibry workstation as shown below. Before establishing the connection make sure the computer and all MCP units are switched off.

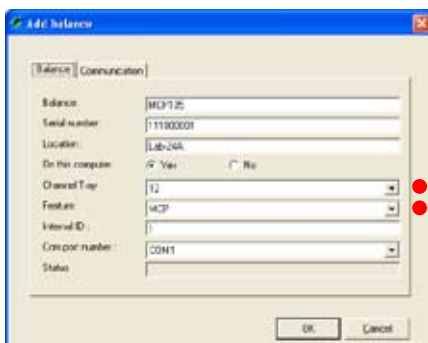
Connection



Setting up the MCP units

1. First verify the software version of every MCP. The version number shows up briefly when switching on the unit. The second number should be "1.40" or higher. If this is not the case, you will have to install the V1.40 (or higher) program cartridge (11138300).
2. If the display of a particular MCP shows the "do Cal" message, proceed to container calibration as explained in the MCP operating instructions. No pipette calibration is possible while the "do Cal" message is displayed and Calibry will report that the balance is not operational (red balance symbol).

Setting up Calibry

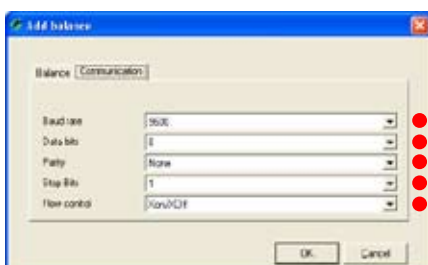


Usually, Calibry will detect the MCPs automatically, otherwise add every MCP as a new balance as shown in the example to the left (see chapter 4.1).

The settings marked with a red dot are mandatory while the other settings may be modified to match your local conditions.

In the "Options/Configuration/Balance/MCP" menu (see chapter 15.2) set the "Process adapter" parameter to "0". In the same menu you may define further settings for the MCPs, as needed (you may even advise Calibry to inform you when the instrument is due for adjustment).

The number of pipette channels to be calibrated is defined when setting up a test method (chapter 7).



Notes on operation

The measured values are transmitted to Calibry when the «Start» key of the MCP is pressed. The entire pipette calibration workflow is controlled by Calibry.

17.4 Calibry and MCP single unit for 1-channel pipettes

This chapter provides information on how to use Calibry in conjunction with the MCP Pipette Calibration System by METTLER TOLEDO, set up for the **calibration of 1-channel pipettes** ("1-channel kit"). The MCP is equipped with a serial RS232C interface that is to be connected to the Calibry workstation as shown below. Before establishing the connection make sure the computer and the MCP are switched off.

Connection



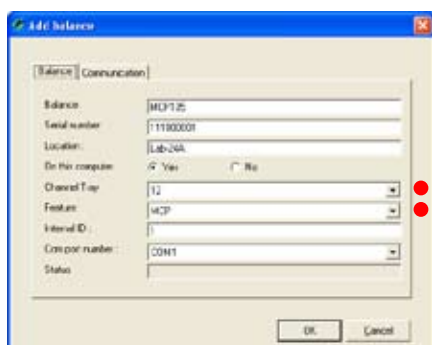
USB-to-RS232 converter cable (11103691)



Setting up the MCP

First verify the software version of the MCP. The version number shows up briefly when switching on the unit. The second number should be "1.40" or higher. If this is not the case, you will have to install the V1.40 (or higher) program cartridge (11138300).

Setting up Calibry

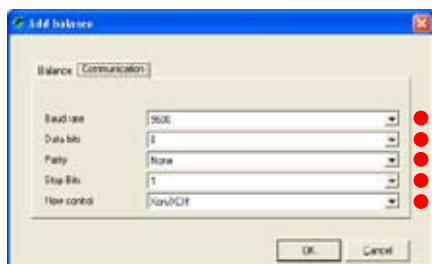


Usually, Calibry will detect the MCP automatically, otherwise add the MCP as a new balance as shown in the example to the left (see chapter 4.1).

The settings marked with a red dot are mandatory while the other settings may be modified to match your local conditions.

In the "Options/Configuration/Balance/MCP" menu (see chapter 15.2) set the "**Process adapter**" parameter to "0". In the same menu you may define further settings for the MCP, as needed (you may even advise Calibry to inform you when the instrument is due for adjustment).

The number of pipette channels to be calibrated (1) is defined when setting up a pipette type (chapter 6.1).



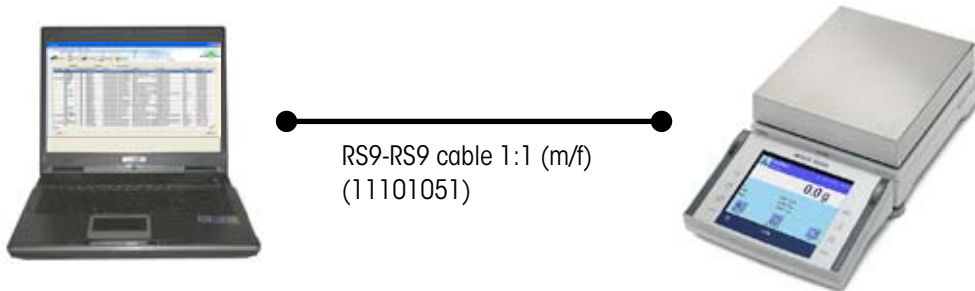
Notes on operation

The measured values are transmitted to Calibry when the «Start» key of the MCP is pressed. The entire pipette calibration workflow is controlled by Calibry.

17.5 Calibry and XP precision balances

This chapter provides information on how to use Calibry in conjunction with the XP precision balance by METTLER TOLEDO. The XP standard equipment includes a serial RS232C interface (optional interfaces are available on request). The balance interface is to be connected to the Calibry workstation as shown below. Before establishing the connection make sure both the computer and the XP balance are switched off.

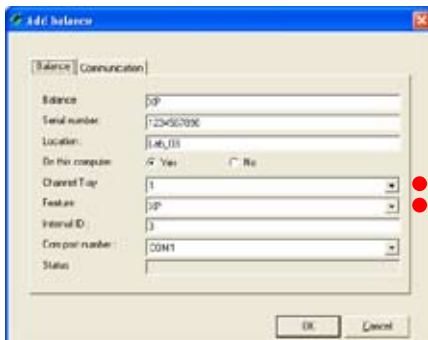
Connection



Setting up the XP balance

Set the "Host" interface to the following values: Baud rate: **9600 Baud**, Bit/Parity: **8 Bit/none**, Stop Bits: **1**, Handshake: **XON/XOFF**, End-of-line character: **<CR><LF>** and Character set: **ANSI/WINDOWS**.

Setting up Calibry

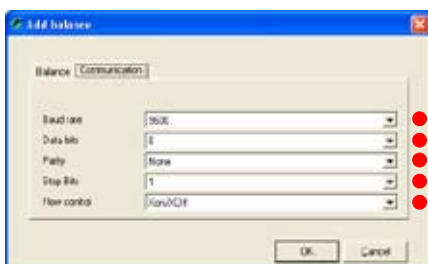


Usually, Calibry will detect the XP balance automatically, otherwise add the XP as a new balance as shown in the example to the left (see chapter 4.1).

The settings marked with a red dot are mandatory while the other settings may be modified to match your local conditions.

In the "Options/Configuration/Calibration" menu (see chapter 15.2) set the "Door management" parameter to "Disabled".

In the "Options/Configuration/Balance/XP" menu you may advise Calibry to inform you when the balance is due for adjustment.



Notes on operation

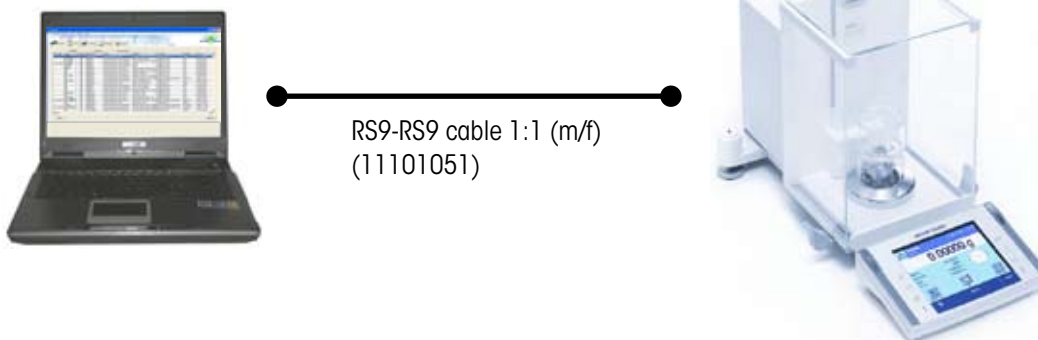
The measured values are transmitted to Calibry when the "Print" key (key with printer symbol) of the XP balance is pressed.

No manual zero setting of the balance is required between subsequent pipetting operations.

17.6 Calibry and XP analytical balances

This chapter provides information on how to use Calibry in conjunction with the XP analytical balance by METTLER TOLEDO. The XP standard equipment includes a serial RS232C interface (optional interfaces are available on request). The balance interface is to be connected to the Calibry workstation as shown below. Before establishing the connection make sure both the computer and the XP balance are switched off.

Connection

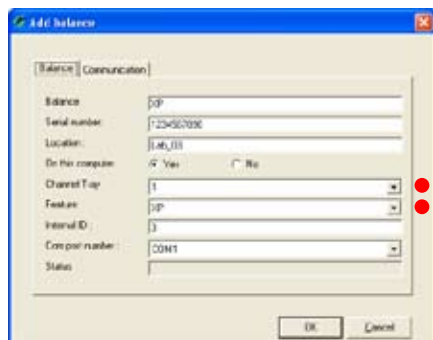


Setting up the XP balance

Set the "Host" interface to the following values: Baud rate: **9600 Baud**, Bit/Parity: **8 Bit/none**, Stop Bits: **1**, Handshake: **XON/XOFF**, End-of-line character: **<CR><LF>** and Character set: **ANSI/WINDOWS**.

Except for special applications we recommend to disable the door management function of Calibry (see below) and to set up the balance accordingly: In the User Settings you may define the "Door function" mode (automatic or manual). Select the **manual** mode if you leave the doors open permanently (e.g. when using a moisture trap) or if you want to open and close the doors manually.

Setting up Calibry



Usually, Calibry will detect the XP balance automatically, otherwise add the XP as a new balance as shown in the example to the left (see chapter 4.1).

The settings marked with a red dot are mandatory while the other settings may be modified to match your local conditions.

Except for special automated applications using accurate timing cycles, we recommend to control the doors at the balance and to disable the door management function of Calibry as follows: In the "Options/Configuration/Calibration" menu (see chapter 15.2) set the "Door management" parameter to "Disabled".

In the "Options/Configuration/Balance/XP" menu you may advise Calibry to inform you when the balance is due for adjustment.



Notes on operation

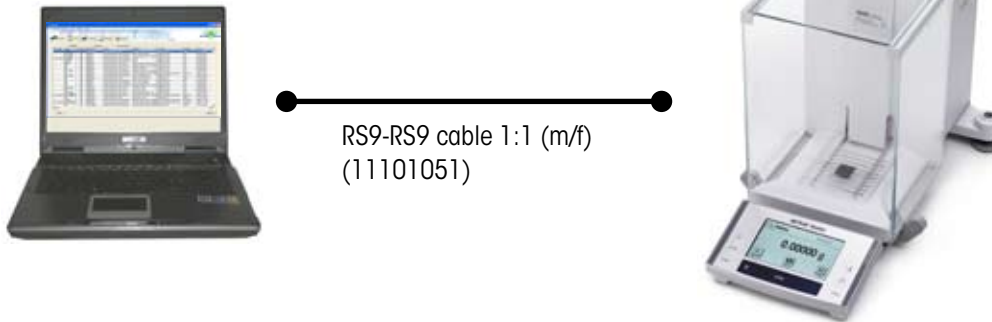
The measured values are transmitted to Calibry when the "Print" key (key with printer symbol) of the XP balance is pressed.

No manual zero setting of the balance is required between subsequent pipetting operations.

17.7 Calibry and XS/WX balances

This chapter provides information on how to use Calibry in conjunction with the XS analytical and precision balances and the WX balances by METTLER TOLEDO. The XS and WX standard equipment includes a serial RS232C interface (optional interfaces are available on request). The balance interface is to be connected to the Calibry workstation as shown below. Before establishing the connection make sure both the computer and the balance are switched off.

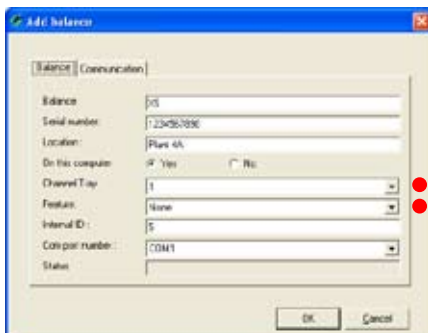
Connection



Setting up the XS/WX balance

Set the "Host" interface to the following values: Baud rate: **9600 Baud**, Bit/Parity: **8 Bit/none**, Stop Bits: **1**, Handshake: **XON/XOFF**, End-of-line character: **<CR><LF>** and Character set: **ANSI/WINDOWS**.

Setting up Calibry



Usually, Calibry will detect the XS/WX balance automatically, otherwise add the XP/WX as a new balance as shown in the example to the left (see chapter 4.1).

The settings marked with a red dot are mandatory while the other settings may be modified to match your local conditions.

In the "Options/Configuration/Balance/Other" menu you may advise Calibry to inform you when the balance is due for adjustment.

Notes on operation

The measured values are transmitted to Calibry when the "Print" key (key with printer symbol) of the XP/WX balance is pressed.

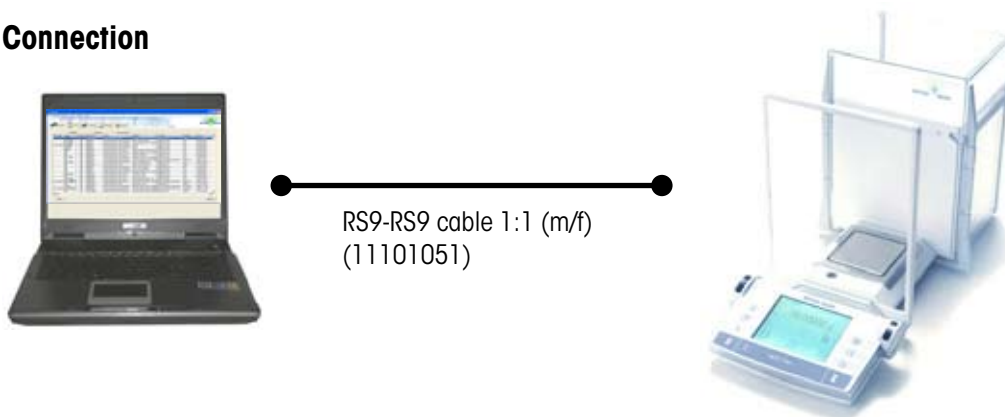
No manual zero setting of the balance is required between subsequent pipetting operations.



17.8 Calibry and AX/MX/UMX balances

This chapter provides information on how to use Calibry in conjunction with the AX, MX and UMX balances by METTLER TOLEDO. The standard equipment of these balances includes a serial RS232C interface. The balance interface is to be connected to the Calibry workstation as shown below. Before establishing the connection make sure both the computer and the balance are switched off.

Connection

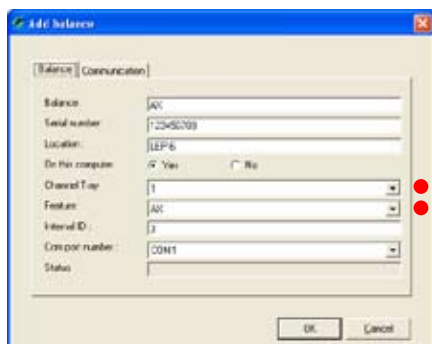


Setting up the AX/MX/UMX balance

Set the "Host" interface to the following values: Baud rate: **9600 Baud**, Bit/Parity: **8 Bit/none**, Handshake: **XON/XOFF**, End-of-line character: **<CR><LF>** and Character set: **ANSI/WINDOWS**.

Except for special applications we recommend to disable the door management function of Calibry (see below) and to set up the balance accordingly: In the User Settings you may define the "Door function" mode (automatic or manual). Select the **manual** mode if you leave the doors open permanently (e.g. when using a moisture trap) or if you want to open and close the doors manually.

Setting up Calibry



Usually, Calibry will detect the AX, MX or UMX balance automatically, otherwise add it as a new balance as shown in the example to the left (see chapter 4.1).

The settings marked with a red dot are mandatory while the other settings may be modified to match your local conditions.

Except for special automated applications using accurate timing cycles, we recommend to control the doors at the balance and to disable the door management function of Calibry as follows: In the "Options/Configuration/Calibration" menu (see chapter 15.2) set the "Door management" parameter to "Disabled".

In the "Options/Configuration/Balance/AX" menu you may advise Calibry to inform you when the balance is due for adjustment.

Notes on operation

The measured values are transmitted to Calibry when the "Print" key (key with printer symbol) of the AX/MX/UMX balance is pressed.

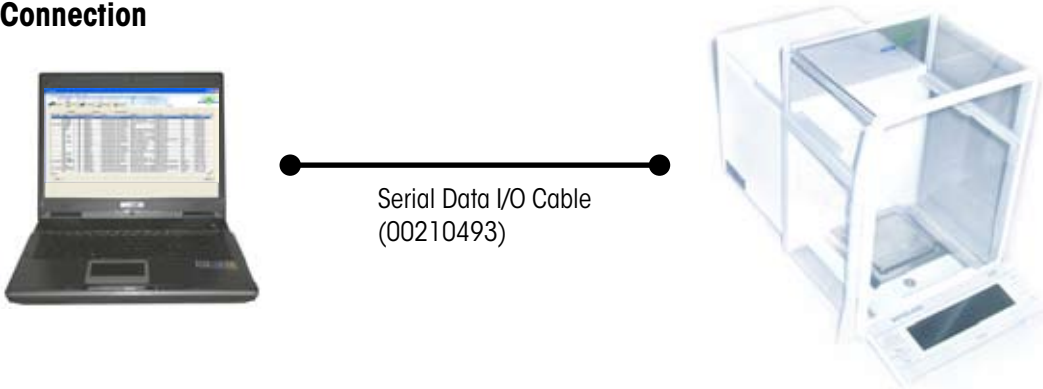
No manual zero setting of the balance is required between subsequent pipetting operations.



17.9 Calibry and AT/MT/UMT balances

This chapter provides information on how to use Calibry in conjunction with the AT, MT and UMT balances by METTLER TOLEDO. The standard equipment of these balances includes a "Data I/O Port" interface. The balance interface is to be connected to the Calibry workstation as shown below. Before establishing the connection make sure both the computer and the balance are switched off.

Connection

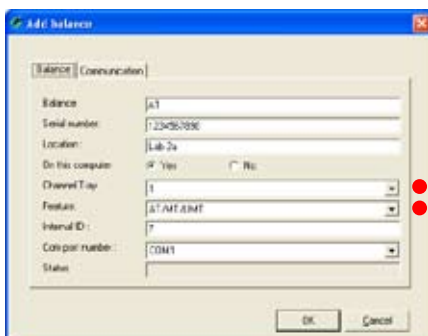


Setting up the AT/MT/UMT balance

Set the balance interface to the following values: Data transfer mode: **S.Stb**, Baud rate: **2400 bd**, Parity: **-E-**, Handshake: **HS soft** and End-of-line character: **crLF**.

Except for special applications we recommend to disable the door management function of Calibry (see below) and to set up the balance accordingly: Select **DoorAuto** if you wish to use the automatic door function, otherwise disable the automatic door function.

Setting up Calibry



Usually, Calibry will detect the AT, MT or UMT balance automatically, otherwise add it as a new balance as shown in the example to the left (see chapter 4.1).

The settings marked with a red dot are mandatory while the other settings may be modified to match your local conditions.

Except for special automated applications using accurate timing cycles, we recommend to control the doors at the balance and to disable the door management function of Calibry as follows: In the "Options/Configuration/Calibration" menu (see chapter 15.2) set the "**Door management**" parameter to "**Disabled**".

In the "Options/Configuration/Balance/Other" menu you may advise Calibry to inform you when the balance is due for adjustment.



Notes on operation

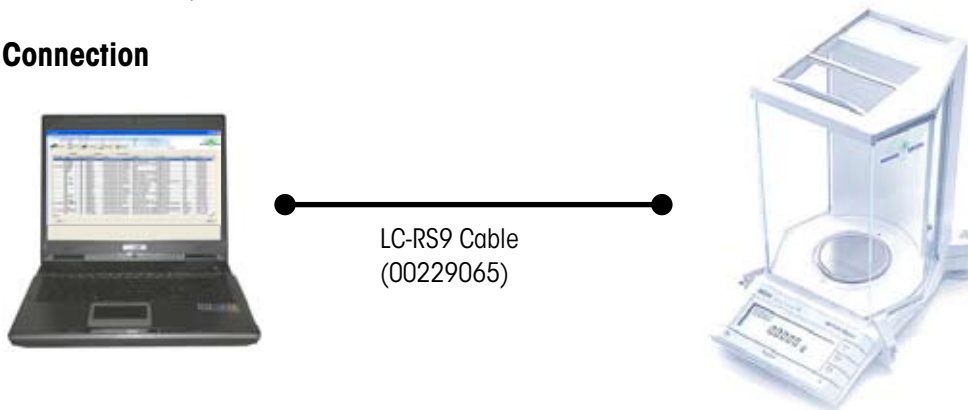
The measured values are transmitted to Calibry when the "Print" key (key with printer symbol) of the AT/MT/UMT balance is pressed.

No manual zero setting of the balance is required between subsequent pipetting operations.

17.10 Calibry and AG balances

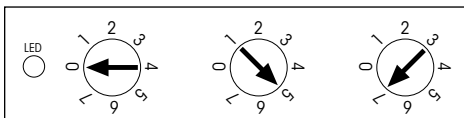
This chapter provides information on how to use Calibry in conjunction with the AG balances by METTLER TOLEDO. The standard equipment of these balances includes a LocalCAN interface, hence connection to the Calibry workstation requires the optional LC-RS9 converter cable. The balance interface is to be connected to the Calibry workstation as shown below. Before establishing the connection make sure both the computer and the balance are switched off.

Connection

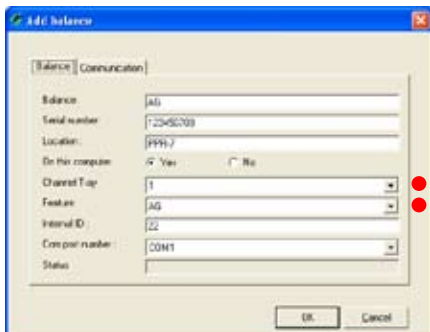


Setting up the AG balance

The communication parameters are not set up at the balance but at the converter box of the LC-RS9 cable. Set the dials as follows:



Setting up Calibry



Usually, Calibry will detect the AG balance automatically, otherwise add it as a new balance as shown in the example to the left (see chapter 4.1).

The settings marked with a red dot are mandatory while the other settings may be modified to match your local conditions.

Since AG balances do not have an automatic door function, you need to disable the door management function of Calibry as follows: In the "Options/Configuration/Calibration" menu (see chapter 15.2) set the "Door management" parameter to "Disabled".

In the "Options/Configuration/Balance/AG" menu you may advise Calibry to inform you when the balance is due for adjustment.



Notes on operation

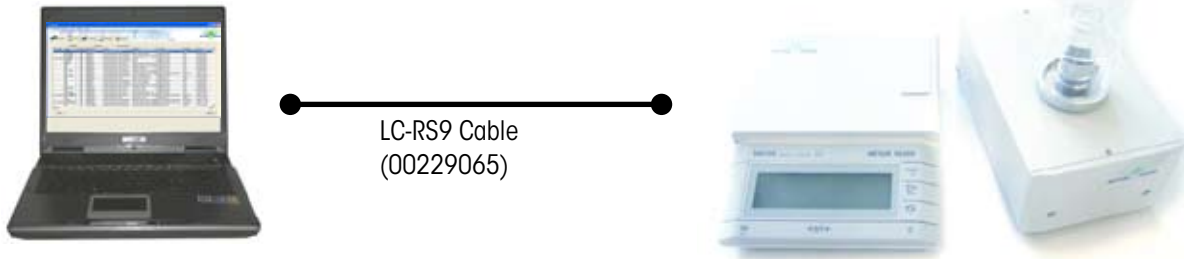
The measured values are transmitted to Calibry when the "Transfer" key (also marked "Menu") of the AG balance is pressed.

No manual zero setting of the balance is required between subsequent pipetting operations.

17.11 Calibry and SAG balances

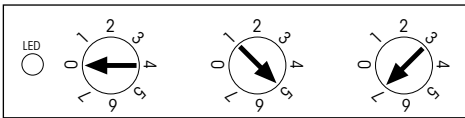
This chapter provides information on how to use Calibry in conjunction with the SAG balances by METTLER TOLEDO. The standard equipment of these balances includes a LocalCAN interface, hence connection to the Calibry workstation requires the optional LC-RS9 converter cable. The balance interface is to be connected to the Calibry workstation as shown below. Before establishing the connection make sure both the computer and the balance are switched off.

Connection

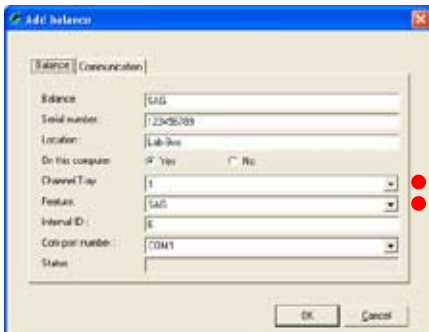


Setting up the SAG balance

The communication parameters are not set up at the balance but at the converter box of the LC-RS9 cable. Set the dials as follows:



Setting up Calibry



Usually, Calibry will detect the SAG balance automatically, otherwise add it as a new balance as shown in the example to the left (see chapter 4.1).

The settings marked with a red dot are mandatory while the other settings may be modified to match your local conditions.

Since SAG balances do not have an automatic door function, you need to disable the door management function of Calibry as follows: In the "Options/Configuration/Calibration" menu (see chapter 15.2) set the "Door management" parameter to "Disabled".

In the "Options/Configuration/Balance/SAG" menu you may advise Calibry to inform you when the balance is due for adjustment.



Notes on operation

The measured values are transmitted to Calibry when the "Transfer" key (also marked "Menu") of the SAG balance is pressed.

No manual zero setting of the balance is required between subsequent pipetting operations.

17.12 Calibry and XP26PC balances

The operating instructions supplied with the XP26PC balance provide a chapter dedicated to Calibry. Please consult this information and configure Calibry and the XP26PC accordingly.

**To protect your METTLER TOLEDO product's future:
METTLER TOLEDO Service assures the quality, measuring accuracy, and
value of your METTLER TOLEDO products for years to come.
Please send for full details of our attractive range of services.
Thank you.**



Subject to technical changes and to changes
in the options supplied with the software.

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