tiBase 1.0

Metrohm
Ion analysis

Online help

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1 Introduction

1.1 Welcome to tiBase

Introduction

tiBase is a program for administrating analysis data on the basis of PC/LIMS reports. These reports can be read from the corresponding Metrohm instruments.

Overview of the main program features

- *User interface: easy to operate and configure*
- *Application*
- *Comprehensive online help*
- *Program versions*

1.2 Application

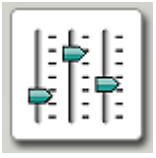
tiBase is a database program for administrating data on the basis of PC/ LIMS reports. The reports from Titrino plus, Compact Titrosampler, PC Control 6.0 and Touch Control 5.840.0150 can be read into tiBase .

1.3 Operation

Introduction

The modern **user interface** makes it simple for the user to find his/her way around tiBase . The bar on the left edge of the screen gives you access to the two basic elements of tiBase :

Database



Configuration

Depending on the access rights, these buttons are either visible or invisible. The menu bar is in the upper part of the screen. It is also possible for the individual commands to be masked out, depending on the access rights.

In the center of the screen there are the **subwindows** with determination overviews, curves information or results. This view can be set individually for each user with the aid of the new Layout Manager. This means that the users only see the buttons needed for their work. This reduces the introductory period for routine users to a minimum; incorrect operation as a result of overcrowded screens are also a thing of the past.

1.4 Connecting devices

Introduction

PC/LIMS reports can be read into tiBase from:

- Titrino plus
  848, 870, 877
- 862 Compact Titrosampler
- Titrando
  808, 809, 835, 836, 841, 842, 855, 857, 888, 890, 901, 902, 904, 905, 906, 907
  Control by Touch Control 5.840.0150 or PC Control 6.0

1.5 Database

Introduction

tiBase is based on an **object-oriented database**, that has proven itself in practice. In the **configuration database**, all program settings, user administration, methods and templates are stored and in the **determination databases** defined by the user, the determination data. These databases can be installed locally on the computer reserved for measurements and make up a simple measurement system. **tiBase** is however scalable and grows with operational requirements. As soon as data security and central data management make it necessary, **tiBase** is installed as a **Client/Server configuration**. The **tiBase** database is then installed on a server. All measurement and office computers work as clients. All results are stored centrally in this network and can be accessed and processed by all Client PCs. All clients also access the same pool of methods.

The new database has all the major tools necessary for management of, searching for and grouping of results. Quick filters allow the user to search through thousands of determinations within seconds and to display the result clearly. Chart plots give a fast overview of the sequence of results based on time.

All options for **reprocessing** are available to the user.

Overview of functions

- Object-oriented Client/Server database *(see Chapter 3.2.3.1, page 91)*.
- Layout manager for the database view *(see Chapter 4.1.7, page 115)*.
- Quick filter *(see Chapter 4.5.2.4.3, page 210)*.
- Efficient search functions *(see Chapter 4.5.2.3, page 207)*.
- Access rights control for every database *(see Chapter 4.3.5.3, page 124)*.

- Automatic database backup *(see Chapter 4.3.5.4, page 124)*.
- Control cards *(see Chapter 4.5.2.16, page 248)*.
- Reprocess determinations *(see Chapter 4.5.2.6, page 220)*.

1.6 Communication

Introduction

The decisive factor for acceptance is easy and economical **integration** in existing laboratory information systems, central databases and long-term archiving systems.

tiBase is communicative. Data generated in **tiBase** can be exported in XML and CSV format. Connection to LIMS systems on the market is thus not difficult. Export to long-term archiving systems such as NuGenesis SDMS or Scientific Software Cyberlab is also supported.

The **Report generator** provides a simple and flexible solution for creating analysis reports. The report generator allows you to freely define the report. It is therefore possible at any time to display one or more determinations in a choice of PDF layouts or as a printout.

Overview of functions

- Import of PC/LIMS reports *(see Chapter 3.4.3, page 103)*
- Various export formats , e.g. XML, CSV, SLK *(see Chapter 4.4.4.2.1, page 174)*.
- Report designer *(see Chapter 4.4.1.4.1.1, page 131)*.
- E-mail functions for security settings *(see Chapter 3.2.2.7, page 89)*.
- Sending determinations by E-mail *(see Chapter 4.5.2.7, page 242)*.

1.7 Conformity

Introduction

With regard to **GMP and GLP requirements**, **tiBase** sets new standards. The latest quality standards and validation procedures were implemented in developing and programming the software. A centralized user administration defines the access rights for program functions and determinations, whereby any number of users with freely definable access profiles are possible. The system administrator can conveniently access the user administration from any tiBase client. Access to the software is password-protected and there is a choice of tiBase or Windows login.

The use of **digital signatures** makes it possible to sign determinations. There are two signatures available with differing properties. With the first signature (Level 1, Review) the user confirms that he has programmed the method correctly or carried out the analysis correctly. With the second signature (Level 2, Release) the method or result is released and protected

against further modifications. It is thus possible to mirror customized workflows in **tiBase** .

All data is organized according to the **version** and protected against unauthorized access, modification or deleting in the database. The database itself controls access to the data in network operation and provides archiving and restore functions.

Conformity relevant properties of tiBase 1.0

- Conformity is priority in development and validation.
- Centralized user administration *(see Chapter 3.2.1.1, page 74)*.
- Detailed access rights *(see Chapter 3.2.1.2.2, page 77)*.
- Password protection under tiBase or Windows *(see Chapter 3.2.2.2, page 83)*.
- Digital signature on two levels *(see Chapter 2.3, page 11)*.
- One signature each for methods and results.
- Documentation of all determination modifications *(see Chapter 4.5.2.13, page 246)*

1.8 Versions

Introduction

tiBase is available in the following **sales versions**, which differ with regard to scope and functions. An **upgrade** is possible at any time.

	tiBase 1.0 full	tiBase 1.0 multi	Upgrade
Product	6.6063.102	6.6063.103	6.6063.108
User administration	•	•	
Security settings	•	•	
Client/Server support		•	
Number of licenses	1	3	
Additional licenses as an option		•	
XML data export to LIMS	•	•	
Upgrade possible	•	•	

1.9 Online help

Introduction

Calling up the Help

tiBase has an extensive and detailed online help that can be requested in two ways:

- **General request** With the menu item **Help ▸ tiBase Help**, or the symbol the online help with the topic *Welcome to tiBase* is opened. From there you can jump via **Contents**, **Index**, **Search** or personal **Favorites** to the desired topic.
- **Context-sensitive request** With the function key **[F1]** on the keyboard you can jump directly to the topic which will show information on the active element in **tiBase** (dialog window, tab).

Symbols and conventions

The following symbols and styles are used in this documentation:

Configuration	Link to another help topic in which information is shown for the marked term.
Database	**Dialog text** Designation for names of parameters, menu items, tabs and dialog windows in the software.
100	Designation for parameter values in input fields.
File ▸ New	Menu or menu item; Path needed to reach a certain point in the program.
[Continue]	**Button**
	Formula editor Formulae can be entered in fields with this symbol, and the formula editor opens when you click on the symbol *(see Chapter 2.4, page 17)*.
1	**Instruction step** Carry out these steps in the sequence shown.
	Caution This symbol draws attention to a possible risk of damage to instruments or instrument parts.
	Note This symbol marks additional information and tips.

2 General program functions

2.1 Program parts

2.1.1 Program parts

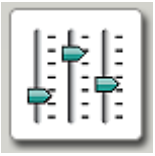
General program functions

tiBase has two different program parts which can be opened by clicking on the corresponding symbol in the vertical bar on the left. The symbol for the opened program part is shown in color, the symbol for the other program part in black and white. The menus, symbol bars and content of the main window depend on the program part currently opened.

Database program part

- Opening/closing databases
- Managing databases
- Reprocessing
- Creating report templates

Configuration program part



- Configuration of data import, login, backup etc.
- Security settings
- User administration
- Program administration

Note

Access to a program part can be deactivated in the user administration. In this case the corresponding symbol is disabled.

2.1.2 Database - Desktop

Program part: **Database**

Database symbol

Clicking on the database symbol in the vertical bar on the left opens the program part **Database** while, at the same time the database symbol is

shown in color. The upper left corner of the symbol contains a black field displaying the number of databases currently opened *(see Chapter 4.2.2, page 119)*.

Elements

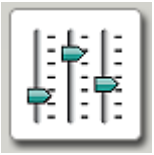
The desktop of the program part **Database** comprises the following elements:

- Database-specific menu bar.
- Database-specific toolbar.
- Main window in which up to 6 subwindows can be displayed.

2.1.3 Configuration - Desktop

Program part: **Configuration**

Configuration symbol



By clicking on on the configuration symbol in the vertical bar at the left-hand margin the program part **Configuration** is opened, at the same time the configuration symbol is shown in color.

Elements

The desktop of the program part **Configuration** comprises the following elements:

- Configuration-specific menu bar.
- Configuration specific toolbar.
- Main window in which 2 subwindows are displayed.

2.2 Login/password protection

2.2.1 General information on Login/Password protection

Program part: **Configuration / Database**

Login into tiBase

tiBase can be configured so that all users have to log in with their **user name** and **password** and this data is automatically checked. This requires a **user administration** to be set up and the corresponding **security settings** to be made. This data is saved in the configuration database. In the case of client/server systems, this is on the server and applies globally for all clients (central user administration).

Recommended settings

On the tab **Login/Password protection** in the dialog window **Security settings** the button **[Set]** has to be pressed in order to set the settings. The following conditions are therefore complied with:

- A **login with user name and password** is required each time the program is started.
- Depending on the setting the **password administration** is carried out in **tiBase** or **Windows**.
- **User names** must be **unique**. Users entered once cannot be deleted.
- **Passwords** must be **unique** per user. None of the expired passwords already used once by the user may be reused.
- Passwords must comprise a **minimum number of characters**.
- Passwords must be changed according to a defined **validity period**.
- The **number of incorrect login attempts** to enter the password is limited. If this number is exceeded, the user will automatically be set to the status **inactive**.

Actions

If the login is activated, the following actions can be performed:

- *Log in at program start*
- *Manual logout*
- *Automatic logout*
- *Change password*

2.2.2 Login

Program parts: **Configuration / Database**

If both the options **Enforce login with user name** and **Enforce login with password** are activated in the **Security settings**, the dialog window **Login** will appear every time the program is started and after each time the user logs out.

User

Entering a short name for the user.

Input	**24 characters**

Password

Password entry.

Input	**24 characters**

Note

Users who log in for the first time or users whose status has been reset from **inactive** or **removed** back to **active**, must log in with the **Start password***(see Chapter 3.2.1.3.1, page 80)* specified by the administrator. Afterwards, the window **Change password** will automatically be opened, in which a new password has to be entered.

[Change password]

Opens the window **Change password**, in which the new password has to be entered and confirmed.

[Cancel]

The login is canceled, the program is terminated.

2.2.3 Log out manually

Menu item: **Configuration / Database ▸ File ▸ Logout**

A logged in user can logout at any time with the menu item **File ▸ Logout**. The logout options defined in the **Security settings** apply. After the logout the **Login** appears, allowing a new user to log in.

2.2.4 Log out automatically

Program part: **Configuration**

If the automatic logout is activated in the **Security Settings**, the user will then automatically be logged out after a definite waiting time if he does not perform any operating functions via the keyboard or mouse. Afterwards the **Login** window opens, in which however only the same user or the members of the same user group can log in.

Note

Users with administrator rights can always log in.

2.2.5 Changing password

Dialog window: **Log in ▸ [Change password] ▸ Change password**

Note

In **tiBase**, the password can only be changed if the option **Password monitoring by tiBase** is set in the security settings.

[Change password]

This button in the dialog window **Login** opens the window **Change password**, in which the new password has to be entered and confirmed.

Note

The password always has to be changed before the **Validity** of the password expires. For users who are logging in for the first time or users whose status has been reset from **inactive** or **removed** back to **active**, this window is automatically opened after logging in with the **Start Password**. For **Old Password** you also need to enter the **Start Password** specified by the Administrator.

Old password

Entry of the previous password.

Input	**24 characters**

New password

Entry of the new password. The password options are defined in the **Security settings** on the tab **Login/Password protection**.

Input	**24 characters**

Confirm password

Confirmation of the new password.

Input	**24 characters**

2.3 Electronic signatures

2.3.1 Rules for electronic signatures

Program part: **Database**

In tiBase determinations can be **electronically signed** at two levels. The following rules apply for this:

- **Signature levels**
  Signature levels for determinations can be signed at two levels (Signature Level 1 and Signature Level 2) by entering the user name and password.
- **Multiple signing**
  Determinations can be signed several times at each level.
- **Sign at Level 1**
  If Level 2 has been signed then no more signatures are possible at Level 1.

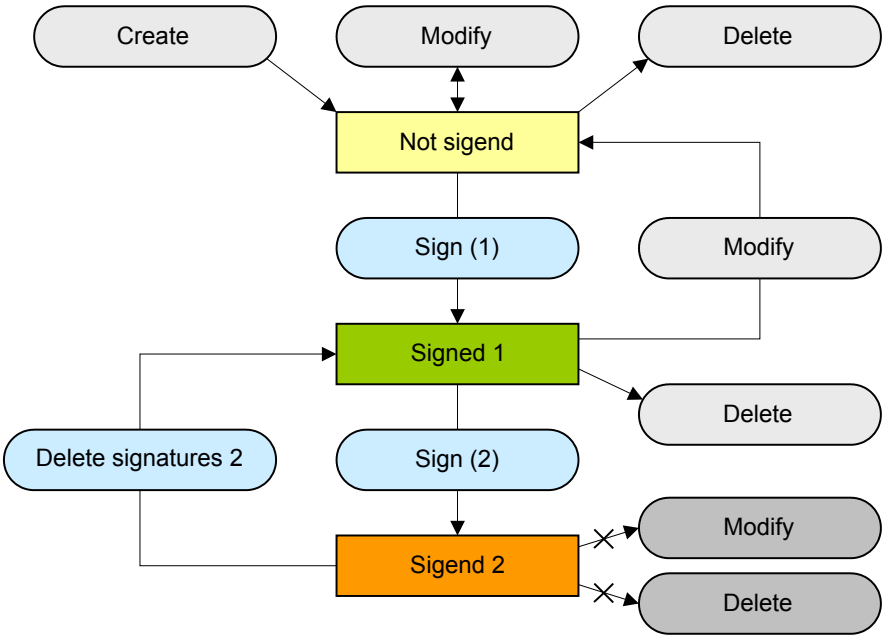
- **Sign at Level 2**
  Level 2 can only be signed if signatures already exist at Level 1.
- **Different users**
  The same user may only sign on either Level 1 or Level 2.
- **Reason and comment**
  Each signature must be accompanied by a reason selected from predefined default reasons. A further comment can also be entered.
- **Saved data**
  The signature date, user name, full name, reason and comments are saved for each signature.
- **Deleting signatures 1**
  Signatures at Level 1 are automatically deleted again when compiling a new version.
- **Deleting signatures 2**
  Signatures at Level 2 can only be deleted by users who have the appropriate rights.
- **Signature options**
  The options for electronic signatures are set in the **Signatures** tab in the **Security settings** dialog window.

2.3.2 Procedure for electronic signatures

Program part: **Database**

Determinations exhibit one of the following three states in relation to signatures (see flow diagram):

- **Not signed**
  Determinations which are not signed can be deleted and changed, a new version being created at each change.
- **Signed (1)**
  When signing determinations at Level 1, no new versions are generated. If determinations signed at Level 1 are changed, a new version is generated, which no longer contains any signatures. Determinations signed at Level 1 can be deleted.
- **Signed (2)**
  When signing determinations at Level 2, no new versions are generated. Determinations signed at Level 2 can neither be changed nor deleted. However, it is possible to delete the signatures (2), whereby the signatures (1) are retained.



2.3.3 Signature Level 1

Dialog window:Database ▸ Determinations ▸ Sign ▸ Signature 1... ▸ Signature Level 1

Determinations can be signed at Level 1 in the **Signature Level 1** window.

Note

Determinations which have been signed at Level 1 can be changed and deleted. If the altered method or determination is saved as a new version then all existing signatures will be deleted automatically, i.e. the method or determination must be signed again.

Info

Information display for signing and deleting signatures. The following messages are possible:

Selection	**Signature possible | Signature 1 not possible (signature 2 exists) | Signature not possible (accessed by other client) | Signature not possible for multiple determinations**

Signature possible
The selected determination can be signed.

Signature 1 not possible (signature 2 exists)
The selected determination can no longer be signed at Level 1 as it has already been signed at Level 2.

Signature not possible (accessed by other client)
The selected determination cannot be signed as it is already marked to be signed on a different client.

Signature not possible for multiple determinations
Several determinations have been selected, they may however only be signed individually.

User

Entry of the user name (short name).

Input	**24 characters**

Password

Password entry.

Input	**24 characters**

Reason

Selection from the **Default reasons** defined in the **Security Settings** dialog window for the category **Signature level 1**.

Selection	**Selection from the Default reasons**

Comment

Entry of comment on the signature.

Input	**1000 characters**

[Sign]

Sign determination. The window remains open.

Note

Determinations can only be signed at level 1 if the user belongs to a user group with the corresponding authorization .

2.3.4 Signature Level 2

Dialog window:Database ▸ Determinations ▸ Sign ▸ Signature 2... ▸ Signature Level 2

Determinations can be signed at Level 2 in the **Signature Level 2** window.

Note

Determinations that can be signed at level 2 are **blocked**, i.e. they can neither be modified nor deleted. In order to be able to edit such determinations again the signatures at level 2 must first be deleted .

Info

Information for signing and deleting signatures is displayed in this box. The following messages are possible:

Selection	**Signature possible | Signature 2 not possible (signature 1 missing) | Signature not possible (accessed by other client)**

Signature possible
The selected determination can be signed.

Signature 2 not possible (signature 1 missing)
The selected determination cannot be signed at Level 2 as it has not yet been signed at Level 1.

Signature not possible (accessed by other client)
The selected determination cannot be signed as it is already marked to be signed on a different client.

User

Entry of the user name (short name).

Input	**24 characters**

Password

Password entry.

Input	**24 characters**

Reason

Selection from the **Default reasons** defined in the **Security Settings** dialog window for the category **Signature level 2**.

Selection	**Selection from the Default reasons**

Comment

Entry of comment on the signature.

Input	**1000 characters**

[Sign]

Sign determination. The window remains open.

Note

Determinations can only be signed at level 2 if the user belongs to a user group with the corresponding authorization .

2.3.5 Delete Signature Level 2

Dialog window:Database ▸ Determinations ▸ Sign ▸ Delete signatures 2... ▸ Delete Signatures Level 2

The **Delete Level 2 signatures** window allows you to delete all signatures on Level 2 for the selected methods or determination.

User

Entry of the user name (short name).

Input	**24 characters**

Password

Password entry.

Input	**24 characters**

Reason

Selection from the **Default reasons** defined in the **Security Settings** dialog window for the category **Signature level 2**.

Selection	**Selection from the Default reasons**

Comment

Entry of comment on the signature.

Input	**1000 characters**

[Delete]

Delete Signatures 2.

Note

Signatures 2 can only be deleted if the user belongs to a user group with the corresponding authorization.

2.4 Formula editor

Dialog window: **Formula editor**

The Formula editor serves as a support when entering formulas for calculating results. It has an automatic **Syntax check**, which is activated when applying the formula. The general rules of priority apply for the calculation operations.

The **Formula Editor** dialog window contains the following elements:

- **Input field**
  Entry of the calculation formula *(see Chapter 2.4.1, page 17)*.
- **Function buttons**
  Buttons for the rapid entry of operators and parentheses *(see Chapter 2.4.1, page 17)*.
- **Operators/functions**
  Selection of the operators and functions variables available for the calculation formula *(see Chapter 2.4.4.1, page 32)*.
- **Description**
  Description of the selected variables, operators or functions.

2.4.1 Input field

Dialog window: **Formula editor**

The calculation formula is entered in the input field of the Formula Editor. The following options are available for the entry:

Entry via keyboard

- **Numbers**
  Numbers as well as mathematical functions can be entered directly via the keyboard.
- **Text**
  Text must be enclosed in quotation marks **"** (e.g. **"my text"**).
- **Variables**
  Variables must be entered and ended with an apostrophe **'** (e.g. **'MV.my variable'**).
- **time**
  Time indications must always be made with the aid of the **Time( )** function.

Entry using the function buttons

Mathematical operators and parentheses can simply be added to the formula using the corresponding buttons. A space is automatically added before and after the sign.

+	*Addition*	=	*Equal to*	AND	*Logic AND*

−	*Subtraction*	>	*Greater than*	OR	*Logic OR*
×	*Multiplication*	<	*Less than*	( )	Round parentheses
/	*Division*	<>	*Not equal to*	{ }	
^	*Potentiation*	<=	*Less than or equal to*		*Molar mass calculator*
		>=	*Greater than or equal to*		Undo last action
					Redo last action

Entry via selection

The element selected in the fields **Variables** or **Operators** can be added to the formula by double clicking or **[Insert]**.

2.4.2 Calculation algorithms

Dialog window: **Formula editor**

Numerical format

The standard IEEE 754 (1985) for binary floating point arithmetic is implemented in "double precision" (64 Bit) in the software.

Rounding off process

Measured values and results are rounded off symmetrically (commercial rounding). In so doing, **1, 2, 3, 4** are always rounded down and **5, 6, 7, 8, 9** always rounded up.

Examples

2.33 yields **2.3**

2.35 yields **2.4**

2.47 yields **2.5**

-2.38 yields **-2.4**

-2.45 yields **-2.5**

Statistics

The mean value, absolute and relative standard deviation of results *R* are calculated using the following formula:

Mean value

$$\bar{x}_k = \frac{1}{n} \cdot \sum_{i=1}^{n} R_{k,i}$$

Absolute standard deviation

$$Sabs_k = +\sqrt{\frac{\sum_{i=1}^{n}\left(R_{k,i} - \bar{x}_k\right)^2}{n-1}}$$

Relative standard deviation (in %)

$$Srel_k = 100 \cdot \frac{Sabs_k}{\bar{x}_k}$$

The statistical calculations of the software have been implemented so that they can be checked to as great a degree as possible by the user. The individual values are therefore incorporated in the statistics with full accuracy.

It is not the number of decimal places which is decisive for the accuracy of the calculations, but rather the number of significant digits of the decimal numbers displayed. The binary 64 bit numerical format implemented on the basis of the IEEE 754 standard means that the decimal numerals resulting from this have 15 certain significant decimal places.

You can influence the number of significant digits by selecting the unit and the number of decimal places. As the result unit to be set sometimes contains the prefix "Milli" as well as the actual physical unit, the number of significant places changes accordingly by three places during such a conversion.

Example

The result displayed **1234.56789158763 mg/L** has 15 certain places. It should be rounded off to three decimal places according to the above rounding procedure:

1234.568 mg/L (7 significant places, 3 of them decimal places)

The unit "**g/L**" means that the same result **1.23456789158763 g/L** is also rounded off to three decimal places:

1.235 g/L (4 significant places, 3 of them decimal places)

The number of significant digits has now been reduced by three to four digits by omitting the prefix "milli".

Note

The above losses of accuracy by rounding off in the area of the maximum certain places are only relevant theoretically. Most of the time they are lower by several orders of magnitude than – as an example – the uncertainties resulting from weighing out the sample.

2.4.3 Variables

2.4.3.1 Variables - Overview

Dialog window: **Formula editor**

Variables are automatically generated by the program during or at the end of the determination. You can use the formula editor to access these and either use the values for further calculations or output them as a result.

Variable types

The following types of variables are differentiated:

Name	Syntax	Description
Method variables	**'MV.Variable name'**	Method variables include the variables **FCT** and **DIV**
Sample data variables	**'MV.Variable name'**	Sample data variables include the variables **Sample size**, **Unit**, **Sample position**, **ID1** and **ID2**.
Command variables	**'Command name.Variable name'**	Command variables are variables which are generated by the individual commands in the method run. The command variables are displayed in the order determined by the commands executed in the method run.
Result variables	**'RS.Result name.Variable identification'**	Result variables are special command variables which are generated by **CALC** commands and which are available under a designation of their own.
Determination variables	**'DV.Variable identification'**	Determination variables are general variables and cannot be assigned to individual commands.
System variables	**'SV.Variable identification'**	System variables are general variables which are adopted in the determination at the start of the determination.
Common variables	**'CV.Name'**	Common variables are global variables. Depending on the device, the names are set or can be defined by the user.

Enter variables

Variables must always be entered and ended with an apostrophe **'** (e.g. **'MV.myVariable'**).

Note

When using variables, always observe their data type (**Number**, **Text** or **Date/Time**).

2.4.3.2 Method variables

Tab: **Database** ▸ **Determinations** ▸ **Reprocessing** ▸ **Variables**

Method variables include the variables **FCT** (factor) and **DIV** (divisor).

Syntax

'MV.Variable name'

Examples: **'MV.FCT'** and **'MV.DIV'**

Occurence

These two variables occur in the formula saved in the 870 KF Titrino plus. By modifying these variables the result can be indicated as different concentration units (mg/mL, ppm etc.).

Method variables

Variable name	Description	Data type
FCT	Conversion factor for the calculation formula	Number
DIV	Divisor for the calculation formula	Number

Conversion table of the formula for KF titration

Result unit	Sample size in...	Factor	Divisor
%	g	0.1	1
%	mg	100	1
%	mL	0.1	Density of the sample in g/mL
ppm	g	1000	1
ppm	mL	1000	Density of the sample in g/mL

ppm	µ L	1	Density of the sample in g/mL
mg/mL	g	Density of the sample in g/mL	1
mg/mL	mL	1	1
mg	1	1	1
mL	1	1	Density of H_2O in g/mL
mg/piece	Pieces	1	1

2.4.3.3 Sample data variables

Dialog window: **Formula editor ▸ Sample data variables**

Sample data variables include the variables **Sample size**, **Unit**, **Sample position**, **ID1** and **ID2**.

In the field **Variables** of the formula editor all **sample data variables** are listed.

Syntax

'MV.Variable name'

Examples: **'MV.Sample Size'** , **'MV.Sample Unit'** , **'MV.ID1'**

You can select the sample data variables directly in the formula editor under **Variables ▸ Sample data variables** in order to avoid syntax errors.

Sample data variables

Variable name (PC-Control)	Variable name (tiBase 1.0)	Description	Data type
CI1	ID1	Sample identification 1	Number
CI2	ID2	Sample identification 2	Number
C00	Sample Size	Sample size	Number
	Sample Unit	Sample unit	Text

Note

If the PC/LIMS report contains a negative value for the sample size (from reweighing), it will be converted during the import into tiBase 1.0 . The variable **COO** becomes **Abs MV.Sample.Size** in tiBase 1.0

2.4.3.4 Command variables

Dialog window: **Formula Editor ▸ Variables**

The command variables are method-specific. They depend on which commands are used in the method. Included among the command variables are also solution and sensor variables, which are applied automatically from the corresponding tables in the **Configuration** for the device-dependent commands at the time the determination is started and which are allocated to the individual commands. The **Variables** field of the Formula editor lists all **Command variables** which are available for the current method.

Syntax

'Command name.Variable identification'

Examples: **'DET U 3.SME'** , **'Liquid Handling 4.CONC'**

You can select the command variables directly in the formula editor under **Variables ▸ Command Variables** in order to avoid syntax errors.

If a method run before the calculation contains more than one data generating command (titrations, measurements, calibrations, monitored dosing, evaluations, calculations), then there is a command identification before the variable.

M. for titration mode, measuring mode and monitored dosing

<E. for EVAL

C. for CALC

Command variables

Unless marked otherwise, all of the variables listed here in alphabetical order are of the **Number** type.

Note

In the case of variables with Index **{x}**, the desired number **1…9** must be entered for **x** (e.g. **.EP{3}.ERC** for the third endpoint).

If no index is specified, then the last index will be used automatically (e.g. **.EP.ERC** for the last endpoint).

Variable name (PC-Control)	Variable name (tiBase 1.0)	Description	Command
.BM#	.BP{x}.MEA	Measured value for the break point x (1…9) in the unit of the measured value	DET, MET, MEAS (without T/Flow)
.BT#	.BP{x}.TEM	Temperature for the break point x (1…9) in °C	DET, MET, MEAS (without T/Flow)
.BD#	.BP{x}.TIM	Time for the break point x (1…9) in s	DET, MET, MEAS (without T/Flow)
.BP#	.BP{x}.VOL	Volume for the break point x (1…9) in mL	DE, MET
.CONC	.CONC	Concentration of the solution used for the command (number)	DET, MET, SET, KFT, STAT, STDADD, ADD, DOS, LQH
.MCD	.DBL	Duration command (total duration for the processing of the command) in s	DET, MET, SET, KFT, KFC, STAT, MEAS, CAL MEAS, STDADD, DOS
.MDC	.DRI	Current and/or last drift for drift correction in mL/min	SET, KFT, KFC
.MSD	.DSC	Duration start conditions (time for processing all start conditions) in s	DET, MET, SET, KFT, STAT
.DDC	.DTI	Time for drift correction (time from the start of the titration to the end of the command) in s	SET, KFT, KFC
.MCM	.EME	End measured value (measured value after processing of the command) in the unit of the measured value	DET, MET, SET, KFT, KFC, STAT, MEAS, CAL MEAS, STDADD, DOS
.MEN	.ENP	Electrode zero point for the sensor used for the command (dimensionless for pH sensor or in mV for the ISE sensor, number) and/or electrode zero point calculated from the calibration (for **STDADD** and **CAL LOOP**)	DET pH, DET U, MET pH, MET U, SET pH, SET U, STAT, MEAS pH, MEAS U, MEAS T, MEAS Conc, CAL LOOP, DOS, STDADD
	.EP{x}.DME	Measured value differential for the endpoint x (1…9)	MET
.EF#	.EP{x}.ERC	ERC for the endpoint x (1…9)	DET
.EM#	.EP{x}.MEA	Measured value for the endpoint x (1…9) in the unit of the measured value	DET, MET, SET, KFT, KFC

Variable name (PC-Control)	Variable name (tiBase 1.0)	Description	Command
.ESI#	.EP{x}.MEP	Marking for the endpoint x (1...9); 1 = 1 endpoint, 2 = 2 or more endpoints	DET, MET, SET, KFT
.EP#	.EP.QTY	Measured value (water) for the endpoint in mg	KFC
.ET#	.EP{x}.TEM	Temperature for the endpoint x (1...9) in °C	DET, MET, SET, KFT
.ED#	.EP{x}.TIM	Time for the endpoint x (1...9) in s	DET, MET, SET, KFT, KFC
.EP#	.EP{x}.VOL	Volume for the endpoint x (1…9) in mL	DET, MET, SET, KFT
.MCT	.ETE	End temperature (temperature following processing of the command) in °C	DET, MET, SET, KFT, KFC, STAT, MEAS (without T/Flow), CAL MEAS, STDADD, DOS
.MCV	.EVT	End volume (total dosed volume at the end of the command) in mL	DET, MET, SET, KFT, STAT, DOS
.FM#	.FP{x}.MEA	Measured value for the fixed endpoint x (1…9) in the unit of the measured value	DET, MET, SET, KFT, STAT
	.FP{x}.QTY	Measured value (water) for the fixed endpoint x (1...9) in mg	KFC
.FT#	.FP{x}.TEM	Temperature for the fixed endpoint x (1…9) in °C	DET, MET, SET, KFT, STAT, MEAS (without T/Flow)
.FD#	.FP{x}.TIM	Time for fixed endpoint x (1…9) in s	DET, MET, SET, KFT, KFC, STAT, MEAS (without T/Flow)
.FP#	.FP{x}.[VOL]	Volume for the fixed endpoint x (1...9) in mL	DET, MET, SET, KFT, STAT
.HM#	.HP{x}.MEA	Measured value for HNP x (1...9) in mV [1)]	DET, MET
.HT#	.HP{x}.TEM	Temperature for HNP x (1...9) in °C	DET, MET
.HD#	.HP{x}.TIM	Time for HNP x (1...9) in s	DET, MET
.HP#	.HP{x}.[VOL]	Volume for HNP (half neutralization potential) x (1...9) in mL	DET, MET
#M.MIM	.IME	Initial measured value (measured value before start conditions are processed) in the unit of the measured value (number)	DET, MET, SET, KFT, STAT, MEAS, CAL MEAS, STDADD, DOS

Variable name (PC-Control)	Variable name (tiBase 1.0)	Description	Command
.MIT	.ITE	Initial temperature (temperature before start conditions are processed) in °C	DET, MET, SET, KFT, STAT, MEAS (without T/Flow), CAL MEAS, STDADD, DOS
.XAM	.MA.MEA	Maximum measured value in the unit of the measured value	DET, MET, SET, KFT, STAT, MEAS
.XAT	.MA.TEM	Temperature for the maximum measured value in °C	DET, MET, SET, KFT, STAT, MEAS
.XAD	.MA.TIM	Time for the maximum measured value in s	DET, MET, SET, KFT, STAT, MEAS
.XAP	.MA.[VOL]	Volume with maximum measured value in mL	DET, MET, SET, KFT, STAT
	.MI.GFL	Minimum gas flow rate in mL/min	MEAS T/Flow
.XIM	.MI.MEA	Minimum measured value in the unit of the measured value	DET, MET, SET, KFT, STAT, MEAS
.XIT	.MI.TEM	Temperature for minimum measured value in °C	DET, MET, SET, KFT, STAT, MEAS
.XID	.MI.TIM	Time for the minimum measured value in s	DET, MET, SET, KFT, STAT, MEAS
.XIP	.MI.[VOL]	Volume for minimum measured value in mL	DET, MET, SET, KFT, STAT
.RMC	.MR.MRC	Correlation coefficient for mean dosing rate for the whole range	STAT, DOS
.RMS	.MR.MRS	Standard deviation for mean dosing rate for the whole range in mL/min	STAT, DOS
.RM	.MR.MRT	Mean dosing rate for the whole range in mL/min	STAT, DOS
.MTM	.MTE	Temperature measurement with sensor; **1** = on, **0** = off)	DET, MET, SET, KFT, STAT, MEAS (without T/Flow), CAL MEAS, STDADD, DOS
.MMP	.NMP	Number of measuring points (number of measuring points in the measuring point list)	DET, MET, SET, KFT, KFC, STAT, MEAS, CAL MEAS, DOS
.RDC#	.RE{x}.DRC	Correlation coefficient for mean dosing rate in window x (1…9)	STAT
.RDS#	.RE{x}.DRS	Standard deviation for mean dosing rate in window x (1…9) in mL/min	STAT

Variable name (PC-Control)	Variable name (tiBase 1.0)	Description	Command
.RD#	.RE{x}.[DRT]	Mean dosing rate in window x (1…9) in mL/min	STAT
.MCM	.RES	Result calculated from the standard addition curve (concentration of the selected unit)	STDADD
.MSL	.SLO	Electrode slope of the sensor used for the command (in % for pH sensor or mV for ISE sensor, number) or electrode slope calculated from the calibration (for **CAL LOOP**)	DET pH, DET U, MET pH, MET U, SET pH, SET U, STAT, MEAS pH, MEAS U, MEAS T, MEAS Conc, CAL LOOP, DOS, STDADD
.MSM	.SME	Start measured value (measured value after processing the start conditions) in the unit of the measured value	DET, MET, SET, KFT, KFC, STAT
.MST	.STE	Start temperature (temperature after processing of the start conditions) in °C	DET, MET, SET, KFT, KFC, STAT
.MTS	.STY	Type of stop with which the command was stopped: **1** = normal; **0** = manual or after error	DET, MET, SET, KFT, STAT, MEAS, CAL MEAS, STDADD, DOS
.MSA	.SVA	Start volume absolute (volume that was added according to the start condition "start volume") in mL	DET, MET, SET, KFT, STAT
.MSP	.SVM	Start volume measured value (volume which was added according to the start measured value given in the start conditions) in mL	DET, MET
.MSS	.SVS	Start volume measured value (volume that was added according to the start condition "start slope") in mL	DET, MET
.MSV	.SVT	Total start volume (volume that was added in dependence on all three start conditions) in mL	DET, MET, SET, KFT, STAT
.TITER	.TITER	Titer value of the solution used for the command (number)	DET, MET, SET, KFT, STAT, STDADD dos, STDADD auto, ADD, DOS, LQH
.MVA	.VAR	Variance of the result calculated from the standard addition curve	STDADD
.MCV	.VOL	Dosed volume	STDADD, ADD, LQH

1) HNP = Half neutralization potential

2.4.3.5 Result variables

Dialog window: **Formula Editor ▸ Variables**

Result variables are method-specific and are defined in the **CALC** command of the method. The **Variables** field of the Formula editor lists all **Result variables** which are available for the current method.

Syntax

'RS.Result name.Variable identification'

Examples: **'RS.RS01.VAL' (='RS.RS01')**, **'RS.testTime.UNI'**

You can select the method variables directly in the formula editor under **Variables ▸ Result Variables** in order to avoid syntax errors.

Result variables

Variable name (PC-Control)	Variable name (tiBase 1.0)	Description	Command
.R1 to .R9	[.VAL]	Result value (**.VAL** optional; number)	**CALC**
SSA#	.ASD	Absolute standard deviation for the result (number)	**CALC**
SMN#	.MNV	Mean value of the result (number)	**CALC**
SNR	.NSR	Statistics actual counter for the result (number)	**CALC**
SSD	.NST	Statistics setpoint counter for the result (number)	**CALC**
SSR#	.RSD	Relative standard deviation for the result (number)	**CALC**
SNT	.STS	Statistics status for the result (number 1 = Statistics on, 0 = Statistics off)	**CALC**
#C.R# unit	.UNI	Result unit (Text)	**CALC**

2.4.3.6 Determination variables

Dialog window: **Formula Editor ▸ Variables**

Determination variables are general variables that are generated in the method run. They are not assigned to individual commands. The **Variables** field of the Formula editor lists the **determination variables** which are available for the current method, sorted according to name.

Syntax

'DV.Variable name'

Examples: **'DV.DUR'**, **'DV.STT'**

You can select the determination variables directly in the formula editor under **Variables/Determination variables** in order to avoid syntax errors.

Available determination variables

Variable name (PC-Control)	Variable name (tiBase 1.0)	Description	Data type
DD	**DUR**	Duration of the determination in s	Number
	STT	Time point at which the determination was started	Date/ Time

2.4.3.7 System variables

Dialog window: **Formula Editor ▸ Variables**

System variables are general variables which are adopted in the determination at the start of the determination. They are assigned neither to individual commands nor to determinations. The **Variables** field of the Formula editor lists all **System variables** which are available for the current method.

Syntax

'SV.Variable name'

Examples: **'SV.SIN'**, **'SV.SLI'**

You can select the system variables directly in the formula editor under **Variables/System variables** in order to avoid syntax errors.

Available system variables

Variable name (PC-Control)	Variable name (tiBase 1.0)	Description	Data type
%AC	.ACC	Autostart actual counter.	Number
%AD	.ACE	Autostart setpoint counter.	Number
%RN	.RUN	Sample number.	Number
%SE	.SEN	Indication whether the end of the sample table has been reached (**1** = **yes**, **0** = **no**).	Number
%AS	.SIN	Indication whether the determination has been started as a single determination or within a series (**1** = **single determination**, **0** = **series determination**).	Number
%SL	SLI	Sample table actual line.	Number

Variable name (PC-Control)	Variable name (tiBase 1.0)	Description	Data type
SNT	.STA	Indication whether the statistics is activated (**1** = **yes**, **0** = **no**.	Number
%SC	.STC	Start counter	Number
%SS		Sample table status **1** = **Sample table on** **0** = **Sample table off**	Number

2.4.3.8 Common variables

Dialog window: **Formula Editor ▸ Variables**

Common variables are global variables, which are adopted from the corresponding table of the program part **Configuration**, where the common variables can be defined, at the start of the determination and assigned to the determination. The **Variables** field of the Formula editor lists all **Common Variables** which are available for the current method, sorted according to name.

Syntax

'CV.Variable name.Variable name'

Examples: **'CV.TestDate'**, **'CV.TestTime.VAL'**, **'CV.Average-Temp.UNI'**

You can select the common variables directly in the formula editor under **Variables/Common Variables** in order to avoid syntax errors.

Available Common Variables

Variable name (PC-Control)	Variable name (tiBase 1.0)	Description	Data type
CV01...CV25	[.VAL]	Value of common variables (number).	Text, number or date/time

Usage

870 KF Titrino Plus

With this instrument the two common variables, CV01 and CV02, are defined for blind values.

877 Titrino Plus, 848 Titrino Plus, 862 Titrosampler

With these instruments there can be defined up to five method-independent common variables, CV01 to CV05. Common variables are e.g useful for the following applications:

- Determination of a blank value which will be taken into account during the content determination of the sample.
- Determination of the content of a standard solution, which will be taken into account during the content determination of the sample.

2.4.3.9 Alphabetical command overview

- **BRC**
  Coulometric bromine number determination
- **CAL Cond**
  Determination of cell constants of conductivity sensors with the aid of a known standard solution.
- **CAL MEAS Conc**
  Measuring of calibration buffers for the calibration of ion-selective electrodes.
- **CAL MEAS pH**
  Measuring of calibration buffers for the calibration of pH sensors.
- **DET pH**
  Potentiometric pH measurement with pH electrodes (measured quantity pH).
- **DET U**
  Potentiometric voltage measurement with metal electrodes (measured quantity voltage U).
- **DET Ipol**
  Voltametric measurement with selectable polarization current (measured quantity voltage U).
- **DET Upol**
  Amperometric measurement with selectable polarization voltage (measured value current I).
- **DOS pH**
  Dosing of a specified volume with a solution (measured quantity pH)
- **DOS U**
  Dosing of a specified volume with a solution (measured quantity voltage U).
- **KFC**
  Coulometric Karl Fischer titration with voltametric measurement.
- **KFT Ipol**
  Volumetric Karl Fischer titration with voltametric measurement (selectable polarization current).
- **KFT Upol**
  Volumetric Karl Fischer titration with amperometric measurement (selectable polarization current).
- **MEAS Conc**
  Concentration measurement (direct measurement).
- **MEAS Cond**
  Conductivity measurement.

- **MEAS Ipol**
  Voltametric measurement with selectable polarization current
- **MEAS pH**
  Potentiometric pH measurement with pH electrodes.
- **MEAS T**
  Temperature measurement.
- **MEAS U**
  Potentiometric voltage measurement.
- **MEAS Upol**
  Amperometric measuremen with selectable polarization current.
- **MET Ipol**
  Monotonic equivalence point titration with voltametric measurement (selectable polarization current).
- **MET pH**
  Monotonic equivalence point titration with potentiometric pH measurement.
- **MET U**
  Monotonic equivalence point titration with potentiometric voltage measurement.
- **MET Upol**
  Monotonic equivalence point titration with amperometric measurement (selectable polarization voltage).
- **SET pH**
  Endpoint titration with potentiometric pH measurement.
- **SET U**
  Endpoint titration with potentiometric voltage measurement.
- **SET Ipol**
  Endpoint titration with voltametric measurement (selectable polarization current).
- **SET Upol**
  Endpoint titration with amperometric measurement (selectable polarization voltage).
- **STAT pH**
  STAT titration by keeping the measured value pH constant.
- **STAT U**
  STAT titration by keeping the measured value U constant.

2.4.4 Operators/functions

2.4.4.1 Operators/functions - Overview

Dialog window: **Formula editor ▸ Operators/Functions**

Overview of the operators and functions

Operators	Functions
Arithmetic: ▪ *Addition* (+) ▪ *Subtraction* (-) ▪ *Multiplication* (*) ▪ *Division* (/) ▪ *Potentiation* (^)	**Arithmetic:** ▪ *Exponential function* (Exp) ▪ *Natural logarithm* (Ln) ▪ *Common logarithm* (Log) ▪ *Square root* (Sqrt) ▪ *Absolute value* (Abs) ▪ *Fraction* (Frac) ▪ *Integer* (Int) ▪ *Round integer* (Round) ▪ *Sign* (Sign) ▪ *Quantiles of the Student's t-distribution* (Tinv)
Logic: ▪ *AND* ▪ *OR*	**Date/Time:** ▪ *Time()* ▪ *Time(Date)* ▪ *Time(Date+Time)*
Comparison: ▪ *Equal to* (=) ▪ *Greater than* (>) ▪ *Greater than or equal to* (>=) ▪ *Less than* (<) ▪ *Less than or equal to* (<=) ▪ *Not equal to* (<>)	**Type conversion:** ▪ *NumberToText* ▪ *NumberToTime* ▪ *TextToNumber* ▪ *TextToTime* ▪ *TimeToNumber* ▪ *TimeToText*
	Text: ▪ *TextPosition* ▪ *SubText* ▪ *Trim*
	Miscellaneous: ▪ *Error* ▪ *Case*

Priority rules of the operators

The operators are evaluated in the order in which they are listed in the table below. In order to attain the required order, it may be necessary to place operators in parentheses.

	Operators
Arithmetic	^
	*, /
	+, -
Comparison	<, <=, >, >=
Logic	AND, OR

2.4.4.2 Arithmetical operators

2.4.4.2.1 Addition

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

Operand1 + Operand2

The operands can be entered either directly or as a variable and can be of the type **Text**, **Number** or **Date/Time**.

Examples

Operand1	Operand2	Result	Example	Remark
both operands of the same type:				
Number	Number	Number	**1.2 + 3 = 4.2**	-
Text	Text	Text	**"Metrohm" + "AG" = "Metrohm AG"**	If the maximum permissible length (65 536 characters) of the character string is exceeded by addition of the operands, the surplus characters will be removed from the second operand.
Time	Time	Number	**Time(1998;04;06) + Time(1964;02;03) = 59300.875** (for UTC+1)	Result: Number of days calculated from December 1899, dependent on the system time
Operand of different type: The operand which does not correspond to the result type is converted to the relevant result type before the operation.				
Number	Text	Text	**1.2 + "Metrohm" = "1.2Metrohm"**	-
Text	Number	Text	**"Metrohm" + 1.2 = "Metrohm1.2"**	-
Number	Time	Number	**2.0 + Time(1999;11;7) = 36472.96** (for UTC+1)	Result: Number of days calculated from December 1899, dependent on the system time
Time	Number	Number	**Time(1999;10;7) + 2.0 = 36441.92** (for UTC+2)	Result: Number of days calculated from December 1899, dependent on the system time
Text	Time	Text	**"Metrohm" + Time(1999;10;7) = "Metrohm1999-10-07 00:00:00 UTC+2"**	Before the operation, the operand of the type **Date/Time** is converted to **Text**.
Time	Text	Text	**Time(1999;01;7) + "Metrohm" = "1999-01-07 00:00:00 UTC +1Metrohm"**	The same rules apply here as for the previous operation.

2.4.4.2.2 Subtraction

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

Operand1 - Operand2

The operands can be entered either directly or as a variable and can be of the type **Text**, **Number** or **Date/Time**.

Examples

Operand1	Operand2	Result	Example	Remark
both operands of the same type:				
Number	Number	Number	**1.2 - 3 = -1.8**	-
Text	Text	Text	**"Metrohm" - "AG" = invalid**	This operation is not allowed.
Time	Time	Number	**Time(1998;01;06) - Time(1964;12;03) = 12'087.00** (for UTC+1)	Result: Number of days calculated from December 1899, dependent on the system time
Operand of different type: The operand which does not correspond to the result type is converted to the relevant result type before the operation.				
Number	Text	Text	**1.2 - "Metrohm" = invalid**	This operation is not allowed.
Text	Number	Text	**"Metrohm" - 1.2 = not valid**	This operation is not allowed.
Number	Time	Number	**2.0 - Time(1999;10;7) = -36'437.917** (for UTC+2)	Result: Number of days calculated from December 1899, dependent on the system time
Time	Number	Number	**Time(1999;10;7) - 2.5 = 36'437.917** (for UTC+2)	Result: Number of days calculated from December 1899, dependent on the system time
Text	Time	Text	**"Metrohm" - Time(1999;10;7) = invalid**	This operation is not allowed.
Time	Text	Text	**Time(1999;10;7) - "Metrohm" = invalid**	This operation is not allowed.

2.4.4.2.3 Multiplication

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

Operand1 * Operand2

The operands can be entered either directly or as a variable and can be of the type **Text**, **Number** or **Date/Time**.

Examples

Operand1	Operand2	Result	Example	Remark
Operands of the same type:				
Number	Number	Number	**1.2 * 3 = 3.6**	-
Text	Text	Text	**"Metrohm" * "AG" = invalid**	This operation is not allowed.
Time	Time	Number	**Time(1998;05;06) * Time(1902;02;03) = 27'478'004.545** (for UTC+1 or +2 for summer time)	Result: Number of days calculated from December 1899, dependent on the system time
Operand of different type: The operand which does not correspond to the result type is converted to the relevant result type before the operation.				
Number	Text	Text	**2 * "Metrohm" = "MetrohmMetrohm"**	-
Text	Number	Text	**"Metrohm" * 2 = "MetrohmMetrohm"**	-
Number	Time	Number	**2.0 * Time(1999;10;7) = 72'879.833** (for UTC+2)	Result: Number of days calculated from December 1899, dependent on the system time
Time	Number	Number	**Time(1999;10;7) * 2.0 = 72'879.833** (for UTC+2)	Result: Number of days calculated from December 1899, dependent on the system time
Text	Time	Text	**"Metrohm" * Time(1999;10;7) = invalid**	This operation is not allowed.
Time	Text	Text	**Time(1999;10;7) * "Metrohm" = invalid**	This operation is not allowed.

2.4.4.2.4 Division

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

Operand1 / Operand2

The operands can be entered either directly or as a variable and can be of the type **Text**, **Number** or **Date/Time**.

Examples

Operand1	Operand2	Result	Example	Remark
Operands of the same type:				
Number	Number	Number	**1.2 / 3 = 0.4**	Operand2 must not be zero!
Text	Text	Text	**"Metrohm" / "AG" = invalid**	This operation is not allowed.
Time	Time	Number	**Time(1998;04;06) / Time(1964;02;03) = 1.533** (for UTC +1 or +2 for summer time)	Result: Number of days calculated from December 1899, dependent on the system time

Operand1	Operand2	Result	Example	Remark
Operand of different type: The operand which does not correspond to the result type is converted to the relevant result type before the operation.				
Number	Text	Text	**1.2 / "Metrohm" = invalid**	This operation is not allowed.
Text	Number	Text	**"Metrohm" / 1.2 = invalid**	This operation is not allowed.
Number	Time	Number	**10'000 / Time(1999;10;7) = 274** (for UTC+2)	Result: Number of days calculated from December 1899, dependent on the system time
Time	Number	Number	**Time(1999;02;17) / 10'000 = 3.621** (for UTC+1)	Result: Number of days calculated from December 1899, dependent on the system time
Text	Time	Text	**"Metrohm" / Time(1999;10;7) = invalid**	This operation is not allowed.
Time	Text	Text	**Time(1999;10;7) / "Metrohm" = invalid**	This operation is not allowed.

2.4.4.2.5 Potentiation

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

Operand1 ^ Operand2

The operands can be entered either directly or as a variable and can be of the type **Text**, **Number** or **Date/Time**.

Examples

Operand1	Operand2	Result	Example	Remark
Operands of the same type:				
Number	Number	Number	**1.2 ^ 3 = 1.728**	Complex results (which comprise +b*i*, i.e. a real and an imaginary component) are displayed as an error.
Text	Text	Text	**"Metrohm" ^ "AG" = invalid**	This operation is not allowed.
Time	Time	Number	**Time(1900;01;05) ^ Time(1900;01;02) = 196.371** (for UTC+1)	Result: Number of days calculated from December 1899, dependent on the system time
Operand of different type: The operand which does not correspond to the result type is converted to the relevant result type before the operation.				
Number	Text	Text	**1.2 ^ "Metrohm" = invalid**	This operation is not allowed.
Text	Number	Text	**"Metrohm" ^ 1.2 = invalid**	This operation is not allowed.
Number	Time	Number	**1.2 ^ Time(1900;02;03) = 586.198** (for UTC+1)	-

Operand1	Operand2	Result	Example	Remark
Time	Number	Number	**Time(1999;10;7) ^ 2.5 = 253479847878.04** (for UTC+2)	-
Text	Time	Text	**"Metrohm" ^ Time(1999;10;7) = invalid**	This operation is not allowed.
Time	Text	Text	**Time(1999;10;7) ^ "Metrohm" = invalid**	This operation is not allowed.

2.4.4.3 Logical operators

2.4.4.3.1 AND

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

Operand1 AND Operand2

The operands can be entered either directly or as a variable and can be of the type **Text**, **Number** or **Date/Time**. The result type is always a number (**1** = true, **0** = false). The following cases are possible:

Operand1	Operand2	Result
1	**1**	**1**
0	**1**	**0**
1	**0**	**0**
0	**0**	**0**

Examples

Oper-and1	Oper-and2	Result	Example	Remark
Operands of the same type:				
Number	Number	Number	**5 AND 4 --> 1** **4 AND 0 --> 0**	Numbers greater than 0 are interpreted as **1** (true).
Text	Text	Number	**"Metrohm" AND "AG" --> 1** **"" AND "AG" --> 0**	An empty character string (**""**) is interpreted as **0** (false), everything else as **1** (true). The first operation therefore corresponds to **1 AND 1 --> 1.**
Time	Time	Number	**Time(1999;10;07) AND Time(1999;10;07) --> 1**	**Time()**: see *Time(Date)*
Operands of a different type:				

Oper-and1	Oper-and2	Result	Example	Remark
Number	Text	Number	**1.2 AND "1.2" --> 1** **0 AND "1" --> 1** **0 AND "0" --> 1** **0 AND "" --> 0**	Before the operation, the operand of the type **Number** is converted to the type **Text**, as a conversion from **Text** to **Number** is not advisable. During the second operation, the 0 is therefore converted to **"0"**, which corresponds to the logical value **1** (true), as every character string that is not empty is interpreted as 1.
Text	Number	Number	**"Metrohm" AND 1.2 --> 1**	The same rules apply here as for the previous operation.
Number	Time	Number	**2.0 AND Time(1999;10;7) --> 1** **0 AND Time(1999;10;07) --> 0**	Before the operation, the operand of the type **Date/Time** is converted to **Number** and all data from December 30, 1899 are interpreted as **1** (true).
Time	Number	Number	**Time(1999;10;7) AND 2.5 --> 1**	The same rules apply here as for the previous operation.
Text	Time	Number	**"Metrohm" AND Time(1999;10;7) --> 1** **"" AND Time(1999;10;07) --> 0**	Before execution of the operation, the operand of the type **Date/Time** is converted to the type **Text** and every character string that is not empty is interpreted as **1** (true).
Time	Text	Number	**Time(1999;10;7) AND "Metrohm" --> 1**	The same rules apply here as for the previous operation.

2.4.4.3.2 OR

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

Operand1 OR Operand2

The operands can be entered either directly or as a variable and can be of the type **Text**, **Number** or **Date/Time**. The result type is always a number (**1** = true, **0** = false). The following cases are possible:

Operand1	Operand2	Result
1	**1**	**1**
0	**1**	**1**
1	**0**	**1**
0	**0**	**0**

Examples

Operand1	Operand2	Result	Example	Remark
Operands of the same type:				

Operand1	Operand2	Result	Example	Remark
Number	Number	Number	**5 OR 4 --> 1** **4 OR 0 --> 1**	Numbers greater than 1 are automatically interpreted as 1 (true)
Text	Text	Number	**"Metrohm" OR "AG" --> 1** **"" OR "Metrohm" --> 1** **"" OR "" --> 0**	An empty character string ("") is interpreted as 0 (false), everything else as 1 (true). The first operation therefore corresponds to 1 OR 1 --> 1
Time	Time	Number	**Time(1999;10;07) OR Time(1964;02;03) --> 1**	**Time()**: see *Time(Date)*
Operand of different type: The operand which does not correspond to the result type is converted to the relevant result type before the operation.				
Number	Text	Number	**1.2 OR "1.2" --> 1** **0 OR "" --> 1**	Before the operation, the operand of the type **Number** is converted to the type **Text**, as a conversion from **Text** to **Number** is not advisable. During the second operation, the 0 is therefore converted to "0", which corresponds to the logical value 1 (true), as every character string that is not empty is interpreted as 1.
Text	Number	Number	**"Metrohm" OR 1.2 --> 1**	The same rules apply here as for the previous operation.
Number	Time	Number	**2.0 OR Time(1999;10;7) --> 1** **0 OR Time(1964;02;03) --> 1**	Before the operation, the operand of the type **Date/Time** is converted to **Number** and all data from December 30, 1899 are interpreted as 1 (true).
Time	Number	Number	**Time(1999;10;7) OR 2.5 --> 1**	The same rules apply here as for the previous operation.
Text	Time	Number	**"Metrohm" OR Time(1999;10;7) --> 1**	Before execution of the operation, the operand of the type **Date/Time** is converted to the type **Text** and every character string that is not empty is interpreted as 1 (true).
Time	Text	Number	**Time(1999;10;7) OR "Metrohm" --> 1**	The same rules apply here as for the previous operation.

2.4.4.4 Relational operators

2.4.4.4.1 Equal to

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

Operand1 = Operand2

The operands can be entered either directly or as a variable and can be of the type **Text**, **Number** or **Date/Time**. The result type is always a number (**1** = true, **0** = false).

Examples

Oper-and1	Oper-and2	Result	Example	Remark
Operands of the same type:				
Number	Number	Number	**5 = 5 --> 1** **4 = 5 --> 0**	-
Text	Text	Number	**"Metrohm" = "AG" --> 0** **"aG" = "AG" --> 0**	When making a comparison between two texts the **ASCII value** of the character sequence is compared *(see Chapter 2.4.4.10, page 65)*. **Attention:** Uppercase and lowercase letters have different values!
Time	Time	Number	**Time(1998;04;06) = Time(1964;02;03) --> 0**	*(see Chapter 2.4.4.6.2, page 53)*
Operands of a different type:				
Number	Text	Number	**1.2 = "1.2" --> 11.2 = "Metrohm" --> 0**	Before the relational operation, the **Number** is converted to **Text**, afterwards the texts are compared according to **ASCII value** *(see Chapter 2.4.4.10, page 65)*.
Text	Number	Number	**"Metrohm" = 1.2 --> 0**	The same rules apply here as for the previous operation.
Number	Time	Number	**2.0 = Time(1999;10;07) --> 0**	Before the operation, the operand of the type **Date/Time**is converted to **Number**. During execution of the operation, the exact value is always used after this conversion, even if maximum 5 places after the comma can be displayed *(see Chapter 2.4.4.7.5, page 58)*.
Time	Number	Number	**Time(1999;10;7) = 2.0 --> 0**	The same rules apply here as for the previous operation.
Text	Time	Number	**"Metrohm" = Time(1999;10;07) --> 0**	Before the operation, the operand is converted from the type **Date/Time** to **Text** (here thus: **"1999-10-07 00:00:00 UTC+2"**), afterwards the texts are compared according to **ASCII value** *(see Chapter 2.4.4.10, page 65)*.
Time	Text	Number	**Time(1999;10;07) = "Metrohm" --> 0**	The same rules apply here as for the previous operation.

2.4.4.4.2 Greater than

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

Operand1 > Operand2

The operands can be entered either directly or as a variable and can be of the type **Text**, **Number** or **Date/Time**. The result type is always a number (**1** = true, **0** = false).

Examples

Oper-and1	Oper-and2	Result	Example	Remark
Operands of the same type:				
Number	Number	Number	**5 > 4 --> 1** **4 > 5 --> 0**	-
Text	Text	Number	**"Metrohm" > "AG" --> 1** **"Aarau" > "Zug" --> 0**	When making a comparison between two texts the **ASCII value** of the character sequence is compared *(see Chapter 2.4.4.10, page 65)*. **Attention:** Upper-case and lowercase letters have different values!
Time	Time	Number	**Time(1998;04;06) > Time(1964;02;03) --> 1**	*(see Chapter 2.4.4.6.2, page 53)*
Operands of a different type:				
Number	Text	Number	**1.2 > "Metrohm" --> 01.23 > "1.2" --> 1**	Before the relational operation, the **Number** is converted to **Text**, afterwards the texts are compared according to **ASCII value** *(see Chapter 2.4.4.10, page 65)*.
Text	Number	Number	**"Metrohm" > 1.2 --> 1**	The same rules apply here as for the previous operation.
Number	Time	Number	**2.0 > Time(1999;10;07) --> 0**	Before the comparison, the operand is converted from the type **Date/Time** to a **Number**.
Time	Number	Number	**Time(1999;10;07) > 2.0 --> 1**	The same rules apply here as for the previous operation.
Text	Time	Number	**"Metrohm" > Time(1999;10;07) --> 1**	Before the operation, the operand is converted from the type **Date/Time** to **Text** (here thus: **"1999-10-07 00:00:00 UTC +2"**), afterwards the texts are compared according to **ASCII value** *(see Chapter 2.4.4.10, page 65)*.
Time	Text	Number	**Time(1999;10;7) > "Metrohm" --> 0**	The same rules apply here as for the previous operation.

2.4.4.4.3 Greater than or equal to

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

Operand1 >= Operand2

The operands can be entered either directly or as a variable and can be of the type **Text**, **Number** or **Date/Time**. The result type is always a number (**1** = true, **0** = false).

Examples

Oper-and1	Oper-and2	Result	Example	Remark
Operands of the same type:				
Number	Number	Number	**5 >= 4 --> 1** **4 >= 5 --> 0**	-
Text	Text	Number	**"Metrohm" >= "AG" --> 1**	When making a comparison between two texts the **ASCII value** of the character sequence is compared *(see Chapter 2.4.4.10, page 65)*. **Attention:** Upper-case and lowercase letters have different values!
Time	Time	Number	**Time(1998;04;06) >= Time(1964;02;03) --> 1**	*(see Chapter 2.4.4.6.2, page 53)*
Operands of a different type:				
Number	Text	Number	**1.2 >= "1.2" --> 11.2 >= "Metrohm" --> 0**	Before the relational operation, the **Number** is converted to **Text**, afterwards the texts are compared according to **ASCII value** *(see Chapter 2.4.4.10, page 65)*.
Text	Number	Number	**"Metrohm" >= 1.2 --> 1**	The same rules apply here as for the previous operation.
Number	Time	Number	**2.0 >= Time(1999;10;07) --> 0**	Before the comparison, the operand is converted from the type **Date/Time** to a **Number**.
Time	Number	Number	**Time(1999;10;07) >= 2.0 --> 1**	The same rules apply here as for the previous operation.
Text	Time	Number	**"Metrohm" >= Time(1999;10;07) --> 1**	Before the operation, the operand is converted from the type **Date/Time** to **Text** (here thus: **"1999-10-07 00:00:00 UTC +2"**), afterwards the texts are compared according to **ASCII value** *(see Chapter 2.4.4.10, page 65)*.
Time	Text	Number	**Time(1999;10;7) >= "Metrohm" --> 0**	The same rules apply here as for the previous operation.

2.4.4.4.4 Less than

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

Operand1 < Operand2

The operands can be entered either directly or as a variable and can be of the type **Text**, **Number** or **Date/Time**. The result type is always a number (**1** = true, **0** = false).

Examples

Oper-and1	Oper-and2	Result	Example	Remark
Operands of the same type:				
Number	Number	Number	**5 < 4 --> 0** **4 < 5 --> 1**	-
Text	Text	Number	**"Metrohm" < "AG" --> 0**	When making a comparison between two texts the **ASCII value** of the character sequence is compared *(see Chapter 2.4.4.10, page 65)*. **Attention:** Upper-case and lowercase letters have different values!
Time	Time	Number	**Time(1998;04;06) < Time(1964;02;03) --> 0**	*(see Chapter 2.4.4.6.2, page 53)*
Operands of a different type:				
Number	Text	Number	**1.2 < "Metrohm" --> 11.2 < "1" --> 0**	Before the relational operation, the **Number** is converted to **Text**, afterwards the texts are compared according to **ASCII value** *(see Chapter 2.4.4.10, page 65)*.
Text	Number	Number	**"Metrohm" < 1.2 --> 0**	The same rules apply here as for the previous operation.
Number	Time	Number	**2.0 < Time(1999;10;07) --> 1**	Before the comparison, the operand is converted from the type **Date/Time** to a **Number**.
Time	Number	Number	**Time(1999;10;07) < 2.0 --> 0**	The same rules apply here as for the previous operation.
Text	Time	Number	**"Metrohm" < Time(1999;10;07) --> 0**	Before the operation, the operand is converted from the type **Date/Time** to **Text** (here thus: **"1999-10-07 00:00:00 UTC +2"**), afterwards the texts are compared according to **ASCII value** *(see Chapter 2.4.4.10, page 65)*.
Time	Text	Number	**Time(1999;10;7) < "Metrohm" --> 1**	The same rules apply here as for the previous operation.

2.4.4.4.5 Less than or equal to

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

Operand1 <= Operand2

The operands can be entered either directly or as variables and can be of the type **Text**, **Number** or **Date/Time**. The result type is always a number (**1** = true, **0** = false).

Examples

Oper-and1	Oper-and2	Result	Example	Remark
Operands of the same type:				
Number	Number	Number	**5 <= 4 --> 0** **4 <= 5 --> 1**	-
Text	Text	Number	**"Metrohm" <= "AG" --> 0**	When making a comparison between two texts the **ASCII value** of the character sequence is compared *(see Chapter 2.4.4.10, page 65)*. **Attention:** Uppercase and lowercase letters have different values!
Time	Time	Number	**Time(1998;04;06) <= Time(1964;02;03) --> 0**	*(see Chapter 2.4.4.6.2, page 53)*
Operands of a different type:				
Number	Text	Number	**2 <= "1.2" --> 01.2 <= "Metrohm" --> 1**	Before the relational operation, the **Number** is converted to **Text**, afterwards the texts are compared according to **ASCII value** *(see Chapter 2.4.4.10, page 65)*.
Text	Number	Number	**"Metrohm" <= 1.2 --> 0**	The same rules apply here as for the previous operation.
Number	Time	Number	**2.0 <= Time(1999;10;07) --> 1**	Before the comparison, the operand is converted from the type **Date/Time** to a **Number**.
Time	Number	Number	**Time(1999;10;07) <= 2.0 --> 0**	The same rules apply here as for the previous operation.
Text	Time	Number	**"Metrohm" <= Time(1999;10;07) --> 0**	Before the operation, the operand is converted from the type **Date/Time** to **Text** (here thus: **"1999.10.07"**), afterwards the texts are compared according to **ASCII value** *(see Chapter 2.4.4.10, page 65)*.
Time	Text	Number	**Time(1999;10;7) <= "Metrohm" --> 1**	The same rules apply here as for the previous operation.

2.4.4.4.6 Not equal to

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

Operand1 <> Operand2

The operands can be entered either directly or as a variable and can be of the type **Text**, **Number** or **Date/Time**. The result type is always a number (**1** = true, **0** = false).

Examples

Oper-and1	Oper-and2	Result	Example	Remark
Operands of the same type:				
Number	Number	Number	**5 <> 4 --> 1** **5 <> 5 --> 0**	-
Text	Text	Number	**"Metrohm" <> "AG" --> 1**	When making a comparison between two texts the **ASCII value** of the character sequence is compared *(see Chapter 2.4.4.10, page 65)*. **Attention:** Upper-case and lowercase letters have different values!
Time	Time	Number	**Time(1998;04;06) <> Time(1964;02;03) --> 1**	*(see Chapter 2.4.4.6.2, page 53)*
Operands of a different type:				
Number	Text	Number	**1.2 <> "1.2" --> 01.2 <> "Metrohm" --> 1**	Before the relational operation, the **Number** is converted to **Text**, afterwards the texts are compared according to **ASCII value** *(see Chapter 2.4.4.10, page 65)*.
Text	Number	Number	**"Metrohm" <> 1.2 --> 1**	The same rules apply here as for the previous operation.
Number	Time	Number	**2.0 <> Time(1999;10;07) --> 1**	Before the comparison, the operand is converted from the type **Date/Time** to a **Number**.
Time	Number	Number	**Time(1999;10;07) <> 2.5 --> 1**	The same rules apply here as for the previous operation.
Text	Time	Number	**"Metrohm" <> Time(1999;10;07) --> 1**	Before the operation, the operand is converted from the type **Date/Time** to **Text** (here thus: **"1999-10-07 00:00:00 UTC +2"**), afterwards the texts are compared according to **ASCII value** *(see Chapter 2.4.4.10, page 65)*.
Time	Text	Number	**Time(1999;10;7) <> "Metrohm" --> 1**	The same rules apply here as for the previous operation.

2.4.4.5 Arithmetical functions

2.4.4.5.1 Exponential function

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

y = Exp(number)

Calculates e ^ number. Other notation for $y = e^{(number)}$, whereby e is the Euler number (e = 2.71828…).

Parameters

Number Exponent

The parameter can be indicated either directly as a number or as a variable of the type **Number**. If the parameter does not correspond to the expected type, it will automatically be converted to this. If this is not possible, the result of this operation is given as **invalid**.

Examples

Exp(1.5) = 4.48169

Exp('CV.AverageTemp') = Power of the exponent (common variable **CV.AverageTemp**) for base e

2.4.4.5.2 Natural logarithm

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

y = Ln(number)

Gives the logarithm of the entered number for base e. Alternative notation for y = loge(number), whereby $_e$ is the Euler number (e = 2.71828…).

Parameters

Number > 0

The parameter can be indicated either directly as a number or as a variable of the type **Number**. If the parameter does not correspond to the expected type, it will automatically be converted to this. If this is not possible, the result of this operation is given as **invalid**.

Examples

Ln(3) = 1.09861

Ln('CV.AverageTemp') = Natural logarithm of the value of the common variable **CV.AverageTemp** for base e

2.4.4.5.3 Common logarithm

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

y = Log(number)

Gives the logarithm of the entered number for base 10. Alternative notation for y = $\log_{10}$(number).

Parameters

Number > 0

The parameter can be indicated either directly as a number or as a variable of the type **Number**. If the parameter does not correspond to the expected type, it will automatically be converted to this. If this is not possible, the result of this operation is given as **invalid**.

Examples

Log(10) = 1

Log('CV.AverageTemp') = Common logarithm of the value of the common variable **CV.AverageTemp**

2.4.4.5.4 Square root

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

y = Sqrt(number)

Gives the square root of the entered number. Alternative notation for y = $\sqrt{}$ **number** or y = $^{2}\sqrt{}$ **number**.

Parameters

Number ≥ 0

The parameter can be indicated either directly as a number or as a variable of the type **Number**. If the parameter does not correspond to the expected type, it will automatically be converted to this. If this is not possible, the result of this operation is given as **invalid**.

Examples

Sqrt(33) = 5.745

Sqrt('CV.AverageTemp') = Square root of the value of the common variable **CV.AverageTemp**

2.4.4.5.5 Absolute value

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

y = Abs(number)

Gives the absolute value of the entered number, i.e. the value of the number irrespective of its sign.

Parameters

Number

The parameter can be indicated either directly as a number or as a variable of the type **Number**. If the parameter does not correspond to the expected type, it will automatically be converted to this. If this is not possible, the result of this operation is given as **invalid**.

Examples

Abs(-55.3) = 55.3

Abs('CV.AverageTemp') = Value of the common variables **CV.Average-Temp** without signs

2.4.4.5.6 Fraction

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

y = Frac(number)

Gives the fraction of the entered number.

Note

In the results properties, the number **Decimal places** of the result must always be given, as otherwise the fraction cannot be displayed.

Parameters

Number

The parameter can be indicated either directly as a number or as a variable of the type **Number**. If the parameter does not correspond to the expected type, it will automatically be converted to this. If this is not possible, the result of this operation is given as **invalid**.

Examples

Frac(-55.325) =0.325

Frac('CV.AverageTemp') = Value of the common variable **CV.Average-Temp** without sign

2.4.4.5.7 Integer

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

y = Int(number)

Gives the integer of the entered number.

Parameters

Number

The parameter can be indicated either directly as a number or as a variable of the type **Number**. If the parameter does not correspond to the expected type, it will automatically be converted to this. If this is not possible, the result of this operation is given as **invalid**.

Examples

Int(-55.325) = -55

Int('CV.AverageTemp') = Integer of the value of the common variable **CV.AverageTemp**

2.4.4.5.8 Rounding integer

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

y = Round(number)

Gives the rounded value of the entered number as a whole number.

Note

If the first decimal place is 5 or greater, the number is rounded up to the next whole number (commercial rounding).

Parameters

Number

The parameter can be indicated either directly as a number or as a variable of the type **Number**. If the parameter does not correspond to the expected type, it will automatically be converted to this. If this is not possible, the result of this operation is given as **invalid**.

Examples

Round(-55.5259) = -56

Round('CV.AverageTemp') = Rounded value of the common variable **CV.AverageTemp**

2.4.4.5.9 Sign

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

y = Sign(number)

Gives the sign of the entered number: **1** for a positive number, **-1** for a negative number.

Parameters

Number

The parameter can be indicated either directly as a number or as a variable of the type **Number**. If the parameter does not correspond to the expected type, it will automatically be converted to this. If this is not possible, the result of this operation is given as **invalid**.

Examples

Sign(-55.3) = -1

Sign(26.115) = 1

Sign('CV.AverageTemp') = Sign of the value of the common variable **CV.AverageTemp**

2.4.4.5.10 Quantiles of the Student's t-distribution

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

t_s **= Tinv(Probability; Degrees of freedom)**

Calculates the quantiles of the Student's t-distribution for two-sided intervals.

The result describes the half interval length as a multiple of the standard deviation of a sampling totality with given **degrees of freedom** within which, with the indicated **probability**, the mean value of the distribution lies, when the interval is centered on the mean value of the sampling totality.

Parameters

Probability

Type number, value range: 0 ... 1. Direct entry as number or as formula providing a number. If the type of value is non-permitted, then the result will become **invalid**. This is to indicate the probability with which the unknown mean value of the t-distributed result is expected to lie within the two-sided interval.

Degrees of freedom

Type number, value range: 1 ... n. Direct entry as number or as formula providing a number. If the type of value is non-permitted, then the result will become **invalid**. The number of independent samplings for calculating the standard deviation, reduced by the number of adjusted parameters for the model to which the standard deviation refers, must be specified as degrees of freedom (Degrees of freedom = Number of samplings – Number of parameters).

Examples

Tinv(0.95; 9) = 2.26 : With a 10-fold determination (e.g. of a titer) half the interval length corresponds to 2.26 times the standard deviation.

Calculation of the confidence interval for a mean value of sampling: A variance-homogenous sampling with a range n for a normally distributed quantity with an expected value μ has the mean value x_m, the standard deviation s and the freedom degrees $v = n - 1$. Half the interval length $t_s \cdot s/\sqrt{n}$ then indicates how high the absolute difference between the mean value x_m and the expected value μ maximally is within the given probability. The **confidence interval** is the full interval length, centered to the mean value: $\mu = x_m \pm t_s \cdot s/\sqrt{n}$.

Titer determination: 0.991, 1.021, 0.995, 1.003, 1.007, 0.993, 0.998, 1.015, 1.003, 0.985

Mean value = 1.001

Standard deviation = 0.0111

Student's t-quantiles for a probability of 95% = 2.26

Confidence interval of the titer = 1.001 ± 0.008

2.4.4.6 Date/time functions

2.4.4.6.1 Time()

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

y = Time()

Gives the current date and the current time.

Parameters

none

Return value

Current date and current time in the format **yyyy-mm-dd hh:mm:ss UTC ±xx**

Note

UTC = Universal Time , from which the times in the various time zones of the earth are derived. CET (Central European Time) is equal to UTC plus 1 hour, in the summer time UTC plus 2 hours.

2.4.4.6.2 Time(Date)

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

y = Time(year; month; day)

Gives the entered figures in the format **Date/Time**.

Parameters

year	**00…99** or **1000…9999**
month	**1…12**
day	**1…31**

A parameter can be indicated either directly as a number or as a variable of the type **Number**. If the parameter does not correspond to the expected type, it will automatically be converted to this. If this is not possible, the result of this operation is given as **invalid**.

Note

Only the integral part is used for all parameters.

A variable of the type **Date/Time** cannot be transferred as a parameter here.

Both for the automatic and explicit conversion of a **Time** to the type **Number**, the number of days are counted since **December 30, 1899** at **01 hours**.

Attention: December 30, 1899 01 hour = 0.00000 days, this number is **rounded** off to 5 decimal places, but a relational operation for example is carried out with the exact value!

Return value

Date/Time in the format **yyyy-mm-dd hh:mm:ss UTC ±xx**

Note

UTC = Universal Time , from which the times in the various time zones of the earth are derived. CET (Central European Time) is equal to UTC plus 1 hour, in the summer time UTC plus 2 hours.

Examples

Time(2004;02;02) = 2004-02-02 00:00:00 UTC +1 (dependent on the system time)

Time('CV.Test year';'CV.Test month';'CV.Test day') = Date comprised of the common variables

2.4.4.6.3 Time(Date + Time)

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

y = Time(year; month; day; hour; minute; second)

Gives the entered numbers in the format **Date/Time**.

Parameters

year	**00…99** or **1000…9999**
month	**1…12**
day	**1…31**
hour	**0…23**
minute	**0…59**
second	**0…59**

A parameter can be indicated either directly as a number or as a variable of the type **Number**. If the parameter does not correspond to the expected type, it will automatically be converted to this. If this is not possible, the result of this operation is given as **invalid**.

Note

Only the integral part is used for all parameters.

A variable of the type **Date/Time** cannot be transferred as a parameter here.

Both for the automatic and explicit conversion of a **Time** to the type **Number**, the number of days are counted since **December 30, 1899** at **01 hours**.

Attention: December 30, 1899 01 hour = 0.00000 days, this number is **rounded** off to 5 decimal places, but a relational operation for example is carried out with the exact value!

Return value

Date/Time in the format **yyyy-mm-dd hh:mm:ss UTC ±xx**

Note

UTC = Universal Time , from which the times in the various time zones of the earth are derived. CET (Central European Time) is equal to UTC plus 1 hour, in the summer time UTC plus 2 hours.

Examples

Time(2004;06;02;10;30;25) = 2004-06-02 10:30:25 UTC +2 (dependent on the system time)

Time('CV.TestYear';'CV.TestMonth';'CV.TestDay';'CV.TestHour';'CV.TestMin';'CV.TestSek') = Date comprised of the common variables

2.4.4.7 Type Conversion functions

2.4.4.7.1 NumberToText

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

y = NumberToText(numberl)

Gives the entered number as **Text**.

Parameters

Number

The parameter can be indicated either directly as a number or as a variable of the type **Number**.

Examples

NumberToText(-55.3) = **-55.3**

NumberToText('CV.AverageTemp') = Vale of the common variable (AverageTemp) als **Text**

2.4.4.7.2 NumberToTime

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

y = NumberToTime(number)

Gives the entered number as **Date/Time**, whereby the number is interpreted as the number of days since December 30, 1899 at 01 hours.

Parameters

Number

The parameter can be indicated either directly as a number or as a variable of the type **Number**.

Examples

NumberToTime(35545.526) = **1997-05-25 14:37:26 UTC+2** (dependent on the system time)

NumberToTime(35780.55) = **1997-12-16 14:12:00 UTC+1** (NumberToTime(35545.526) = 1997-05-25 14:37:26 UTC+2 (dependent on the system time)

NumberToTime('CV.TestDate') = Value of the common variable (TestDate) as **Date/Time**

2.4.4.7.3 TextToNumber

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

y = TextToNumber(Text)

Gives the entered text as a **number**.

Parameters

Text

The parameter may only contain **numerical characters** or variables of the type **Text**, as otherwise a type conversion is not possible. The result of this conversion or the calculation would then be **invalid**. In addition, text must be marked by **inverted commas**.

Examples

TextToNumber("-55.3") = **-55.3**

TextToNumber('CV.DurchschnTemp') = Value of the variables (AverageTemp) as **Number**

TextToNumber('MV.ID1') = entered text of **ID 1** as **Number**

2.4.4.7.4 TextToTime

Dialog window: **Formula editor** ▸ **Operators/Functions**

Syntax

y = TextToTime(Text;Format)

Gives the entered text as a **Date/Time**.

Parameters

Text

The parameter may only contain **numerical characters** or variables of the type **Text**, as otherwise a type conversion is not possible (Result = **invalid**). As a **delimiter** betwen Year, Month etc. you can use the following characters: slash (**/**), full stop (**.**), minus (-), semi-colon (**;**), colon (**:**), space and comma. You can determine the **order** of the individual data yourself, but must indicate this in the **Format** parameter.

Format

Indicates in which format or order the text has been entered. This parameter must be marked by **inverted commas** and can comprise the following code characters:

Characters	Significance
y	Year
M	Month
d	Day
H	Hour 0…23
h	Hour AM/PM
m	Minute
s	Second
a	AM/PM marking

Note

If you indicate the time in the format **AM/PM**, it is necessary in addition to the formatting character **h** to use the AM/PM marking **a** (see first example below).

Examples

TextToTime("2004-12-3 5:22:01 PM";"yMdhmsa") = **2004-12-03 17:22:01 UTC+1** (dependent on the system time)

TextToTime("12-15-01 2001:3:5";"HmsyMd") = **2001-03-05 12:15:01 UTC+1** (dependent on the system time)

TextToTime('CV.TestDate';'CV.TestFormat') = Values of the common variables in the time format indicated

TextToTime('MV.ID1';'CV.TestFormat') = entered text of ID1 in the time format indicated

2.4.4.7.5 TimeToNumber

Dialog window: **Formula editor** ▸ **Operators/Functions**

Syntax

y = TimeToNumber(Time)

Gives the entered number as a **Number**.

Note

Both for the automatic and explicit conversion of a **Time** to the type **Number** the number of days are counted since **December 30, 1899 at 01 hours**.

Attention: December 30, 1899 01 hours = 0.00000 days, this number is **rounded** off to 5 decimal places, but a relational operation for example is carried out with the exact value.

Parameters

Time

This parameter can be indicated either in the form of a time function or as a variable of the type **Time**.

Examples

TimeToNumber(Time()) = current date and current time represented as **Number** (in days since December 1899)

TimeToNumber(Time(1999;12;31;23;59;59)) = 36525.95832

TimeToNumber(Time('TestYear';'TestMonth';'TestTag')) = Value of the common variables as number of days as a **Number**

2.4.4.7.6 TimeToText

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

y = TimeToText(Time)

Gives the time entered as **Text**.

y = TimeToText(Time;Format)

Gives the time entered as **Text** in the required format.

Parameters

Time

This parameter can be indicated either in the form of a time function or as a variable of the type **Date/Time**.

Format

Indicates in which format or order the time is to be output as text. This parameter can comprise the following code characters and must be marked by **inverted commas**:

Characters	Significance	Example
y	two-digit year number	**03**
yyyy	four-digit year number	**1999**
M	one or two-digit month number	**4, 12**
MM	two-digit month number	**04, 12**
MMM	Month name short form	**Jul, Aug**
MMMM	Month name	**July, August**
d	one or two-digit day number	**2, 25**
dd	two-digit day number	**02, 25**
h	one-digit or two-digit hour number (1…12 AM/PM)	**5, 11**
hh	two-digit hour number (1…12 AM/PM)	**05, 11**
H	one-digit or two-digit hour number (0…23)	**8, 17**
HH	two-digit hour number (0…23)	**08, 17**
m	one or two-digit minute number	**2, 25**
mm	two-digit minute number	**02, 25**
s	one or two-digit second number	**3, 55**
ss	two-digit second number	**03, 55**

Characters	Significance	Example
E	Weekday short form	**Mon, Tue, Wed**
EEEE	Weekday	**Monday, Tuesday**
D	one, two or three-digit number of the day in the year	**2, 35, 142**
DD	two or three-digit number of the day in the year	**02, 35, 142**
DDD	three-digit number of the day in the year	**002, 035, 142**
F	one-digit number of the weekday in the month, e.g. the **2**nd Monday in May	**2**
w	one or two-digit number of the week in the year	**5, 25**
ww	two-digit number of the week in the year	**05, 25**
W	one-digit number of the week in the month	**3**
a	Format AM/PM	**AM, PM**
'	Inverted commas for entering any text	
''	Entry of '	**'**

Note

If you wish to indicate the time in the format **AM/PM**, it is necessary in addition to the formatting character **h** to use the AM/PM marking **a** (see last example below).

Examples

TimeToText(Time()) = current date and current time (system) as **Text**

TimeToText(Time(2004;05;04)) = **2004-05-04 00:00:00 UTC+2** (dependent on the system time)

TimeToText('CV.TestZeit') = Value of the common variable (type **Time**) as **Text**

TimeToText(Time(2000;12;31);"EEEE', 'dd'.'MMMM' 'yyyy") = **Sunday, December 31, 2000**

TimeToText(Time(1997;05;22);"M'/'d'/'yyyy', 'ha") = 5/22/1997, 12PM

2.4.4.8 Text functions

2.4.4.8.1 TextPosition

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

y = TextPosition(Text ; sample text)

Gives the **Index** which indicates at which point the **sample text** appears for the first time in the **Text**. The numbering of the index begins at **1**!

Parameters

Text

The parameter can be indicated either directly or as a variable of the type **Text**, **Number** or **Date/Time**.

Sample text

The parameter can be indicated either directly or as a variable of the type **Text**, **Number** or **Date/Time**. If the types of the two parameters do not coincide, the type is converted from **Sample text** to the type **Text**. If the **Sample text** is not included in the **Text**, the status **invalid** is given.

Note

Entries of the type **Number** are always provided with a decimal place.

Example: **TexPosition("12345";3)** = **invalid**, as the 3 is converted to 3.0 before the operation in 3.0 and this is not included in the text.

Examples

TextPosition("Citric acid";"acid") = 9, the word "**acid**" occurs in the text from index number 9 onwards

TextPosition("Citric acid";"Acid") = **invalid**, the word "**Acid**" (capitalized) does not occur in the text

TextPosition("Citirc acid";"salt") = **invalid**, the word "**salt**" does not occur in the text

TextPosition(Time(2004;05;05);"5") = **7**

TextPosition(3362.14;"6") = **3**

TextPosition('MV.ID2';"Carbonate") = Index in which the word part "**Carbonate**" begins for the first time in the ID2

2.4.4.8.2 SubText

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

y = SubText(Text ; Position ; Length)

Gives that part of the text from **Text** which begins at the index **Position** and which has the length **Length**.

Parameters

Text

The parameter can be indicated either directly as text or as a variable of the type **Text**. If the parameter does not correspond to the expected type, it will automatically be converted to this. If this type conversion is not possible, the result of this operation is given as **invalid**.

Position

The numbering of the **Position** begins at **1**. The parameter can be indicated either **directly as a number** or as a variable of the type **Number**. If the parameter does not correspond to the expected type, it will automatically be converted to this. If a type conversion is not possible or the position does not exist, the result of this operation is given as **invalid**.

Length

The parameter can be indicated either directly as a number or as a variable of the type **Number**. If the parameter does not correspond to the expected type, it will automatically be converted to this. It a type conversion is not possible or the length indicated here is greater than the length of the subtext, **invalid** is given

Examples

SubText("Citric acid";9;5) = **acid**

SubText("Citric acid";9;6) = **invalid**, only five characters exist from position 9 onwards

SubText('MV.ID2';1;3) = the first three chracters of the identification 2

2.4.4.8.3 Trim

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

y = Trim(Text)

Gives the **Text** without spaces before and after.

y = Trim(Text ; sample text)

Gives the **Text** without **Sample text**.

Parameters

Text

The parameter can be indicated either directly or as a variable of the type **Text**, **Number** or **Date/Time**.

Sample text

The parameter can be indicated either directly or as a variable of the type **Text**, **Number** or **Date/Time**. If the types of the two parameters do not coincide, the type is converted from **Sample text** to the type **Text**.

Note

Entries of the type **Number** are always provided with a decimal place.

Example: **Trim("12345";3)** = **12345**, as the 3 is converted to 3.0 before the operation and this is not included in the text.

Examples

Trim(" Citric acid ") = **"Citric acid"**

Trim("Citric acid";"acid") = **Lemons**

Trim("Citric acid";"salt") = **Citric acid**

2.4.4.9 Miscellaneous functions

2.4.4.9.1 Case

Dialog window: **Formula editor** ▸ **Operators/Functions**

Syntax

y = Case(Condition ; value_true ; value_false)

y = Case(Condition ; value_true ; value_false ; value_error)

Gives **value_true** if the condition is true. Otherwise **value_false** is given. If an error occurs in the condition (result **invalid**), **value_error** is given.

Parameters

Condition Number

Any variable (type **Number**) can be entered here, or a relational or logic operation can be performed whose operators can be transferred either directly or as a variable. These can be of the type **Text**, **Number** or **Date/Time**.

Value_true

If **condition <> 0**, this parameter is saved as a result of the function. This parameter can be transferred either directly or as a variable and can be of

the type **Text**, **Number** or **Date/Time**. Entire operations can also be transferred here.

Value_false

If **condition = 0**, this parameter is saved as a result of the function. This parameter can be transferred either directly or as a variable and can be of the type **Text**, **Number** or **Date/Time**. Entire operations can also be transferred here.

Value_error

If **condition = invalid**, this parameter is saved as a result of the function. This parameter can be transferred either directly or as a variable and can be of the type **Text**, **Number** or **Date/Time**. Entire operations can also be transferred here.

Examples

Case('MV.ID1' = "";"ID1 empty";"ID1 not empty") = if no entry has been made for ID1 in the run window, the text **ID1 empty**, otherwise **ID1 not empty**will be saved in the result.

Case('RS.IntermediateRes' > 5.5;"Intermediate result too high";'RS.IntermediateRes' * 26.5;"Error occurred") = If the result "**IntermediateRes**" is greater than 5.5, the text "**Intermediate result too high**" will be written into the result, otherwise the intermediate result will be multiplied by 26.5. If an error occurs during the comparison (**'RS.IntermediateRes' > 5.5**), "**Error occurred**" will be saved as a result of this operation.

2.4.4.9.2 Error

Dialog window: **Formula editor ▸ Operators/Functions**

Syntax

y = Error(value)

Gives **+1** if the **value is invalid** (error) or **0** if the **valie is valid**. This function can be used e.g. to check variables for their existence or validity.

Parameters

Value

The variable to be tested.

Examples

Error('RS.IntermediateRes') = 0: the intermediate result was able to be calculated.

Error('RS.ZwischenRes') = 1: the intermediate result is invalid.

2.4.4.10 ASCII table

Dialog window: **Formula editor**

Only characters that can be printed are listed in the table below:

ASCII value (dec)	Characters	ASCII value (dec)	Characters	ASCII value (dec)	Characters
32	Space	64	At sign (@)	96	Accent grave (`)
33	Exclamation mark (!)	65	A	97	a
34	Quotation mark (")	66	B	98	b
35	Hash mark (#)	67	C	99	c
36	Dollar ($)	68	D	100	d
37	Percent (%)	69	E	101	e
38	Commercial "and" (&)	70	F	102	f
39	Inverted comma (')	71	G	103	g
40	Opening paren-theses (()	72	H	104	h
41	Closing paren-theses ())	73	I	105	i
42	Multiplication sign (*)	74	J	106	j
43	Addition sign (+)	75	K	107	k
44	Apostrophe (')	76	L	108	l
45	Subtraction sign (-)	77	M	109	m
46	Point (.)	78	N	110	n
47	Slash mark (/)	79	O	111	o
48	0	80	P	112	p
49	1	81	Q	113	q
50	2	82	R	114	r
51	3	83	S	115	s
52	4	84	T	116	t
53	5	85	U	117	u
54	6	86	V	118	v

ASCII value (dec)	Characters	ASCII value (dec)	Characters	ASCII value (dec)	Characters
55	7	87	W	119	w
56	8	88	X	120	x
57	9	89	Y	121	y
58	Colon (:)	90	Z	122	z
59	Semi-colon (;)	91	Square parentheses ([)	123	Curly parentheses ({)
60	Less than (<)	92	Backslash (\)	124	Vertical stroke (¦)
61	Equals (=)	93	Square parentheses (])	125	Curly parentheses (})
62	Greater than (>)	94	Circumflex (^)	126	Tilde (~)
63	Question mark (?)	95	Underscore (_)		

2.4.5 Molar mass calculator

Dialog window: **Molar mass calculator**

The dialog window **molar mass calculator** is used for the simple entry of molar masses into the formula editor and is opened with the button .

Mode of operation

The molecular formula of any chemical compound can be entered in the **Molecular formula** field, after which pressing **[OK]** will cause the molar mass of the compound to be calculated and entered directly into the formula editor.

The molecular formula can be entered either directly or by clicking on the symbols of the periodic system.

Examples

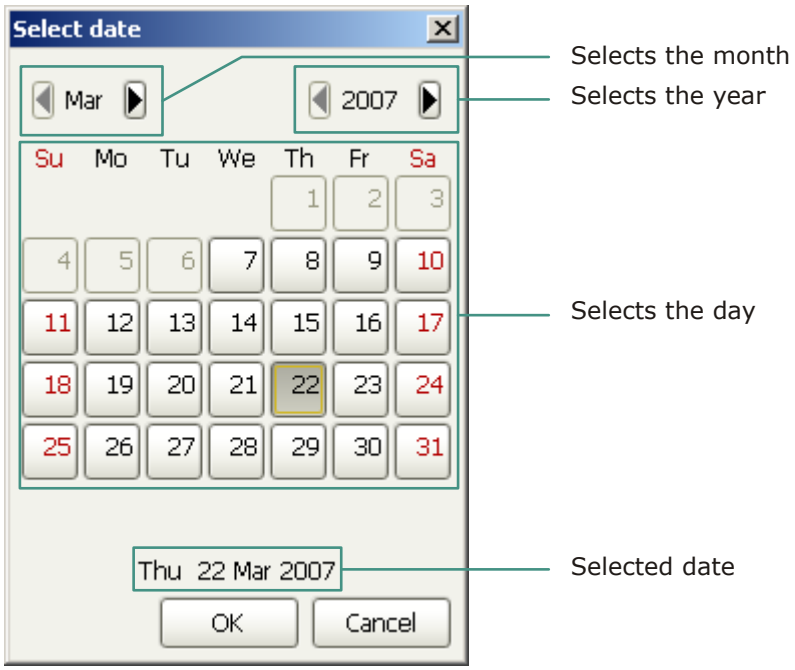
Molecular formula	Molar mass
H2SO4	**98.0734**
Ca(OH)2	**74.09268**
AlCl3*6H2O	**238.43174**

2.5 Editing

2.5.1 Select date

Dialog window: **Select date**

The dialog window **Select date** serves for entering a date in a field and is opened with the button ...



2.5.2 Text editor

Dialog window: **Text editor**

The text editor serves for entering formatted text in text fields and is opened with the button T.

The toolbar of the text editor includes the following functions:

Cut selected text and copy it to the clipboard.

Copy selected text to the clipboard.

Paste text from the clipboard.

Open editor for entering a hyperlink *(see Chapter 2.5.3, page 68)*.

Open formula editor for entering calculation formulas .*(see Chapter 2.4, page 17)*

> **Note**
>
> In order for results of formulas of the type **Date** to be output correctly, they must be converted for text windows with the function **TimeTo-Text***(see Chapter 2.4.4.7.6, page 59)* to **Text**.

Font size in pt.

Select font color.

Bold.

Italic.

Underlined.

Left-justified.

Centered.

Right-justified.

2.5.3 Hyperlink

Dialog window: **Hyperlink**

The dialog window **Hyperlink** serves for entering a hyperlink in a field and is opened with the button .

Displayed text

Designation of the hyperlink that is displayed.

Link target

Address of the link target to which the hyperlink refers (Web site, E-mail address, file,...).

The button opens a selection dialog in order to link a file as a link target.

3 Configuration

3.1 Configuration - General

3.1.1 Configuration - Definition

Program part: **Configuration**

Definition

In **tiBase**, **configuration** is to be understood as settings for data import, security settings, user administration, program administration and templates.

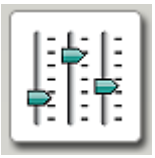
Organization

All configuration data is saved in the **configuration database**. In the local server systems (**tiBase full**) these are stored in the program directory of the computer on which the program has been installed. In client/server systems (**tiBase multi**) the configuration database is stored centrally on the server and saves and contains all the configuration data of all computers (clients) that are connected to this server.

3.1.2 Configuration - Desktop

Program part: **Configuration**

Configuration symbol



By clicking on on the configuration symbol in the vertical bar at the left-hand margin the program part **Configuration** is opened, at the same time the configuration symbol is shown in color.

Elements

The desktop of the program part **Configuration** comprises the following elements:

- Configuration-specific menu bar.
- Configuration specific toolbar.
- Main window in which 2 subwindows are displayed.

3.1.3 Configuration - Menu bar

3.1.3.1 Configuration - Main menus

Program part: **Configuration**

The menu bar in the program part **Configuration** includes the following main menu items:

- *File*
  Export, import, backup, restore configuration data.
- *View*
  Switch toolbar on and off.
- *Tools*
  User administration, security settings, program administration, options.
- *Help*
  Open program help, display program information.

3.1.3.2 Configuration - Menu File

Program part: **Configuration**

Export...	Exports configuration data *(see Chapter 3.3.1.1, page 95)*.
Import...	Imports configuration data *(see Chapter 3.3.1.2, page 96)*.
Backup ▸	
Automatically	Backup configuration data automatically *(see Chapter 3.3.2.1, page 97)*.
Manual	Backup configuration data manually *(see Chapter 3.3.2.2, page 98)*.
Print (PDF)... ▸	
PDF **User administration**	Outputs user administration data as PDF file *(see Chapter 3.2.1.1, page 74)*.
PDF **Security settings**	Outputs security settings as PDF file *(see Chapter 3.2.2.1, page 82)*.
Logout...	Logout user [Link target not found in publication context!]
Exit	End program.

3.1.3.3 Configuration - Menu View

Program part: **Configuration**

☑ **Toolbar**	Switch toolbar display on/off.

3.1.3.4 Configuration - Menu Tools

Program part: **Configuration**

User administration...	Manages users and groups of users with access rights, signature rights and options *(see Chapter 3.2.1.1, page 74)*.
Security settings...	Options for login, password protection, Audit Trail and electronic signature *(see Chapter 3.2.2.1, page 82)*.
Program administration...	General settings for local/server and client/server settings *(see Chapter 3.2.3.1, page 91)*.
Options...	Sets program options *(see Chapter 3.3.3.1, page 100)*.

3.1.3.5 Help Menu

Program part: **Configuration / Database**

tiBase Help	Open tiBase help.
About	Displays information about the program and the installation.

3.1.4 Configuration - Toolbar

Program part: **Configuration**

User administration...	Manages users and groups of users with access rights, signature rights and options *(see Chapter 3.2.1.1, page 74)*.
Security settings...	Options for login, password protection, Audit Trail and electronic signature *(see Chapter 3.2.2.1, page 82)*.
Logout...	Logout user *(see Chapter 2.2.3, page 10)*.
tiBase Help	Open tiBase help.

3.1.5 Configuration - Subwindows

Program part: **Configuration**

Selection

The following subwindows are displayed in the main window:

- *Import processes*
  Shows the details for reading-in PC/LIMS reports of different analysis instruments in tabular form.
- *Import protocol*
  Shows the log entries since the last program start.

Presentation

The subwindows can be enlarged or made smaller to suit by dragging the separating bar between the windows.

By clicking on the button ☐ above at the right, the subwindows can be maximized so that only one subwindow is displayed in the main window. The original view of all subwindows is restored when the ☐ button in the maximized subwindow is clicked on again.

3.1.6 Configuration - Functions

Program part: **Configuration**

In the program part **Configuration** the following functions can be carried out:

Views

- *Toolbar*

User administration

- *Manage user groups*
- *Access rights*
- *Signatures*
- *Options*
- *Users*

Security settings

- *Login/Password protection*
- *Electronic signature*
- *Default reasons*

Program administration

- *Backup directories*
- *Clients*
- *Licenses*

Export/Import of configuration data

- *Export configuration data*
- *Import configuration data*

Backup/Restore configuration data

- *Backup configuration data automatically*
- *Backup configuration data manually*
- *Restore configuration data*

Options

- *General program properties*

3.1.7 View

3.1.7.1 Views - General

Program part: **Configuration**

Definition

The term **View** defines the contents and design of the main window in the program parts **Configuration** and **Database**. In contrast to the program part **Database**, the program part **Configuration** only has one view.

Function

- *Toolbar*
  Enable or disable the toolbar.

Automatic load

At the program start the view with the following subwindows is opened:

Import processes, **Import protocols**

Export/Import

Views can also be exported and imported. In this way these views can be exchanged between different client / server systems.

3.1.7.2 Toolbar

Menu item: **Configuration ▸ View ▸ Toolbar**

With the menu item **Configuration ▸ View ▸ Toolbar** the toolbar can be enabled or disabled.

3.2 Administration

3.2.1 User administration

3.2.1.1 User administration

Dialog window: **Configuration ▸ Tools ▸ User administration**

Overview

User groups and their users can be managed in the dialog window **User administration**. For each user group, access rights can be defined for menu items and functions, signature rights and default views for the individual program parts. For client/server systems, the user administration is globally valid for all connected clients (central user administration).

During installation, the three user groups **Administrators** (with the user **Admin1**), **Users** and **Removed users** (each without any users) are automatically generated. All groups can be renamed; the **Administrators** group is the only group that cannot be deleted.

The user administration data can be exported and imported. In this way this data can be exchanged between different client/server systems.

The user administration data can be output as PDF file using the menu item **File ▸ Print (PDF) ▸ User administration**.

Structure

The dialog window **User administration** is divided into two parts, the size of which can be modified with the mouse. In the left-hand part the user groups with their assigned users are listed in tree-form, the right-hand side shows details of the selected items.

Each user group, with the exception of the **Removed users** group, contains the following items:

- *Access rights*
  Assigns access rights to the four program parts and their menu bars.
- *Signatures*
  Assigns signature rights for methods and determinations.
- *Options*
  Defines the view for the individual program parts.
- *Users*
  Details of the users.

Functions

In the dialog window **User administration** the following functions can be carried out:

- *Add user groups*
- *Copy user groups*
- *Rename user groups*
- *Delete user groups*
- *Define access rights for user groups*
- *Define signature rights for user groups*
- *Define options for user groups*
- *Add user*
- *Set start password for new user*
- *Deactivate user*
- *Activate user*
- *Remove user*

3.2.1.2 User groups

3.2.1.2.1 User groups - Details

Dialog window: **Configuration ▸ Tools ▸ User administration**

If a user group is selected in the left-hand side of the **User administration** dialog window then details of this user group will be shown on the right-hand side together with a table containing all its members.

Group data

Group name

Shows the name of the user group.

Description

Description of the user group.

Input	**256 characters**

[Rename group]

Renames selected user group.

[Delete group]

Deletes selected user group.

[Copy group]

Copies selected user group.

[Add group]

Adds new user group.

User group members

The table showing the group members contains information about all members of the selected user group. The table can neither be edited nor sorted.

User

Short name of the user.

Full name

Full name of the user.

Status

Current user status.

Selection	**active** | **inactive**

active
The user can log in as usual.

inactive
The user can no longer log in. The Administrator must first assign him/her the status **activated** and provide a new Start password.

[Add user]

Adds new user to user group.

3.2.1.2.2 User administration - Access rights

Dialog window: **Configuration** ▸ **Tools** ▸ **User administration**

If in the left-hand part of the dialog window **User administration** the item **Access rights** is marked for a user group then the access rights of this group for program parts, menu items and functions will be shown in tree-form in the right-hand side of the window and can be modified there. If one item is deactivated, then all the subitems belonging to it will also be automatically deactivated. If a subitem, e.g. the menu **Tools**, is deactivated in the configuration then the box for the configuration is colored gray. Blocked functions are deactivated for the particular user, i.e. shown in gray.

Meaning of the symbols:

	Enlarge view	P	Program part
	Reduce view	M	Menu item
☑	Full access to function(s)	F	Function
☑	Limited access to function(s)		
☐	No access to function(s)		

Note

In the **Administrators** group all access rights are switched on as standard and cannot be modified.

3.2.1.2.3 User administration - Signatures

Dialog window: **Configuration** ▸ **Tools** ▸ **User administration**

If in the left-hand part of the dialog window **User administration** the item **Signatures** is marked for a user group, then the rights of this group will be shown in the right-hand part and can be modified there.

Permissions for determinations

Signature Level 1

If this check box is enabled then users in this user group can electronically sign determinations at Level 1.

Selection	**off** | **on**
Default value	**off**

Signature Level 2 (lock)

If this check box is enabled then users in this user group can electronically sign determinations at Level 2 and at the same time lock them against further modifications.

Selection	**off** | **on**
Default value	**off**

Delete signatures Level 2

If this check box is enabled then users in this user group can delete all signatures at Level 2. The method can be edited again.

Selection	**off** | **on**
Default value	**off**

3.2.1.2.4 User administration - Options

Dialog window: **Configuration ▸ Tools ▸ User administration**

If in the left-hand part of the dialog window **User administration** the item **Options** is marked for a user group then options for this group will be shown in the right-hand part and can be modified there.

Default database view

Selection of the view that will open in the program part **Database** as standard when the user logs in.

Selection	**Selection of the defined database views**

Default configuration view

Selection of the view that will open in the program part **Configuration** as standard when the user logs in.

Selection	**Selection of the defined configuration views**

3.2.1.2.5 Add user group

Dialog window: **Configuration ▸ Tools ▸ User administration ▸ [Add group] ▸ Add group**

In order to add a new user group with standard settings an existing group must be selected and either the context-sensitive menu item **Add group** then opened or the **[Add group]** button must be pressed. This opens the dialog window **Add group**.

Group name

Name of new group.

Input	**24 characters**

With **[OK]** a new group is generated under this name with standard settings; it does not contain any users. The **Description** field and the table of group members are empty.

3.2.1.2.6 Copy user group

Dialog window: **Configuration ▸ Tools ▸ User administration ▸ [Copy group] ▸ Copy group**

Dialog window:

In order to copy a user group and save it under a new name, an existing group must be selected and either the context-sensitive menu item **Copy group** or the **[Copy group]** button must be pressed. This opens the dialog window **Copy group**.

Group name

Name of new group.

Input	**24 characters**

With **[OK]** a new group is generated under this name with same properties (access rights, signature rights, etc.) as the selected group; it does not contain any users. The **Description** field and the table of group members are empty.

3.2.1.2.7 Rename user group

Dialog window: **Configuration ▸ Tools ▸ User administration ▸ [Rename group] ▸ Rename group**

In order to rename a selected user group either the context-sensitive menu item **Rename group** or the **[Rename group]** button must be pressed. This opens the dialog window **Rename group**.

Group name

Enter the new group name.

Input	**24 characters**

3.2.1.2.8 Delete user group

Function: **Configuration ▸ Tools ▸ User administration ▸ [Delete group]**

In order to delete a selected user group either the context-sensitive menu item **Delete group** or the **[Delete group]** button must be pressed. The group is then deleted.

Note

It is only possible to delete a user group when the group no longer contains any users.

3.2.1.3 User

3.2.1.3.1 User - Details

Dialog window: **Configuration ▸ Tools ▸ User administration**

If in the left-hand side of the dialog window **User administration** a user in a user group has been selected, then details of the user will be shown at the right-hand side.

User

Shows the short name of the user that must be entered in the field **User**. This name is defined when a new user is entered for the first time and cannot be subsequently modified.

Input	**24 characters**

Full name

Full name of the user.

Input	**256 characters**

Status

Shows the current status of the user. Only users of the group **Administrators** can modify the status.

Selection	**active** | **inactive** | **removed**

active
Users with the status **enabled** can log in in the usual way. An exception is the first login after a change in status from **disabled** or **removed** to **enabled**. In this case a **Start password** must be issued with which this user can then log in.

inactive
Users with the status **disabled** can no longer log in. They are automatically given this status as soon as the number of incorrect login attempts defined in the **Security settings** has been exceeded.

removed
Users with the status **removed** can no longer log in. If the status of a user is changed from **activated** or **deactivated** to **removed**, then the user is automatically moved to the group **Removed users**. If a removed user is subsequently again given the status **activated** or **deactivated** then a dialog window appears for selecting the group to which the user is to be assigned.

Start password

The invisible start password is shown with 6 ***** characters and must be entered the first time that a new user logs in or after a change in status from **deactivated** or **removed** to **activated**. The Administrator must issue a new start password when adding a new user or after a change in status to **activated**. If the user has logged in with the start password and then entered a new password, then the start password is deleted again.

Input	**50 characters**

[Set start password]

Opens the dialog window **Start password**. This button is enabled only for users with the status **activated**. If a user has forgotten his/her password then the Administrator can issue a new start password here.

User group

Current user group. The administrator can modify the group assignment of the user. The user is automatically moved to the new group. A user can also be moved to a new group with Drag&Drop.

Selection	**Selection of the defined user group**

Remarks

Optional entry of additional information for the user (e.g. function, address).

Input	**1000 characters**

3.2.1.3.2 Add user

Dialog window: **Configuration ▸ Tools ▸ User administration ▸ [Add user] ▸ Add user**

There are two ways of adding a new user:

- Select user group and the context-sensitive menu item **Add user**.
- Select user group and press the **[Add user]** button.

In both cases this opens the dialog window**Add user**.

User

Short name of new user that must be used to log in at program start. After the name has been entered a **Start password** must be issued with which the user is entered in the list of users.

Input	**24 characters**

3.2.1.3.3 Set start password

Dialog window: **Configuration ▸ Tools ▸ User administration ▸ [Set start password] ▸ Set start password**

Using the **[Set start password]** button in the dialog window **User administration** a start password can be issued for the selected user. It is enabled only for newly added users or for those who have once again achieved **activated** status. The dialog window **Start password** opens:

Start password

Enter a new start password. Password options are not used for the start password.

Input	**50 characters**

Confirm password

Confirms the start password.

Input	**50 characters**

3.2.2 Security settings

3.2.2.1 Security settings

Dialog window: **Configuration ▸ Tools ▸ Security settings**

Overview

In the dialog window **Security settings** the parameters for log-in, password protection and electronic signatures can be configured.

With client/server systems the security settings are globally valid for all connected clients.

Security settings can be exported and imported. This means that these settings can be exchanged between different client/server systems.

The security settings can be put out as PDF file using the menu item **File ▸ Print (PDF) ▸ Security settings**.

Tabs

The security settings are configured on the following tabs:

- *Login/Password protection*
  Settings for login and password protection.

- *Modifications*
  Enable/Disable comments when determinations are modified.
- *Signatures*
  Options for electronic signatures.
- *Default reasons*
  Definition of reasons for signing and modifying methods, determinations and sample data.

3.2.2.2 Login/Password protection

Tab: **Configuration ▸ Tools ▸ Security settings ▸ Login/Password protection**

On the tab **Login/Password protection** is defined whether the user must log in with his/her name or with name and password, and how the password is to be monitored and constructed.

Settings according to 21 CFR 11

[Set]

Sets the parameters to default settings for FDA-compliant work.

Login policies

Enforce login with user name

If this check box is **enabled** then every time that the program starts, the login window will appear in which the user must enter his/her user name. If this check box is **disabled** no login is necessary and the user logged in under Windows will be adopted as user name. In this case all subsequent parameters are deactivated.

Selection	**on** | **off**
Default value	**off** FDA default: **on**

Enforce login with password

If this check box is **enabled** then every time that the program starts, the login window will appear in which the user has to enter a password as well as his/her user name. If this option is **disabled**, then all subsequent parameters are deactivated.

Selection	**on** | **off**
Default value	**off** FDA default: **on**

Password monitoring by tiBase

If this option is **enabled** then the password will be monitored by **tiBase** according to the following parameters.

Selection	**on** | **off**
Default value	**off** FDA default: **on**

Password monitoring by Windows

If this option is **enabled** then the password will be monitored according to the parameters defined in Windows. In this case the parameters for password protection are deactivated.

Selection	**on** | **off**
Default value	**off** FDA default: **off**

Caution

When using password monitoring through Windows, to avoid an unwanted login by the standard defined user **Guest** in Windows, this must also either be provided with a password or (preferably) be deactivated.

Note

With Windows 2000, proceed as follows for password monitoring by Windows:

1. Run/Execute "secpol.msc".
2. Under "Local Policies/User Rights Assignment", switch on the guideline "Act as part of the operating system" for all desired user groups.
3. Restart computer.

Maximum number of incorrect login attempts

If this check box is **activated** then a user will be given the status **deactivated** as soon as the number of incorrect login attempts defined here has been exceeded. A user with the status **deactivated** can no longer start the program. The counter for incorrect login attempts is reset to zero for all users at each new start.

Selection	**on** | **off**
Default value	**off** FDA default: **off**

Range	**2 ... 5**
Default value	**3** FDA default: **3**

Message by E-mail

If this check box is **activated** then an E-mail will be sent to the address defined under **[E-mail]** as soon as the defined number of incorrect login attempts has been exceeded.

Selection	**on** | **off**
Default value	**off** FDA default: **off**

[E-mail]

This button opens the dialog window **Send E-mail***(see Chapter 3.2.2.7, page 89)* for defining the E-mail parameters.

Logout policies

New login only for same user

If this check box is **activated** then for manual logout a renewed login is only possible for the same user. Users with administrator rights can always log in. If this option is enabled then the subsequent option is automatically enabled and deactivated.

Selection	**on** | **off**
Default value	**off** FDA default: **off**

Note

If the automatic logout is enabled (see below) only the same user or a user with administrator rights can log in again independent of these option settings.

No editing of workplaces in 'BUSY' status

If this check box is **activated** then, after a user has logged out manually, a newly logged-in user on the workplaces still open with running determinations can neither edit data or trigger actions. Such workplaces will only be available again when all determinations are finished. For running determinations the old user name always applies (Audit Trail entries, Save, Export, etc.). Exceptions are the stop of a determination with **[Stop]** and the emergency stop, which are always possible for all running determinations and series.

If this check box is **deactivated** then the newly logged-in user will have all the rights for the opened workplaces that his/her group assignment authorizes him/her to. For running determinations the new user name applies immediately (Audit Trail entries, Save, Export, etc.).

Selection	**on** | **off**
Default value	**off** FDA default: **off**

Automatic logout after

If this check box is **activated** then the user will be logged out automatically when no operating functions have been carried out with the keyboard or the mouse within this time. After this automatic logout, only a member of the same user group as the one to which the previously logged-off user belongs or a user with administrator rights can log in again.

Selection	**on** | **off**
Default value	**off** FDA default: **off**

Range	**1 ... 60 min**
Default value	**10 min** FDA default: **10 min**

Note

The immediate termination of all determinations on all activated work-places with the **emergency stop button** still remains possible after an automatic logout.

Password policies

Enforce unique password

If this check box is **activated** then this ensures that a user can use a given password only once.

Selection	**on** | **off**
Default value	**off** FDA default: **on**

Enforce use of special characters

If this check box is **activated** then this ensures that the password must contain at least one special character (@, #, ~ etc.).

Selection	**on** | **off**
Default value	**off** FDA default: **off**

Minimum password length

If this check box is **activated** then this ensures that the password must contain the indicated number of characters.

Selection	**on** | **off**
Default value	**off** FDA default: **on**

Range	**1 ... 10 Characters**
Default value	**6 Characters** FDA default: **6 characters**

Validity

If this check box is **activated** then this ensures that the user must enter a new password before the validity period expires. When a user logs in whose password will expire within the next 10 days a corresponding message will appear. If the validity period has expired, the user can only log in if he changes the password.

Selection	**on** | **off**
Default value	**off** FDA default: **on**

Range	**1 ... 999 days**
Default value	**365 days** FDA default: **365 days**

3.2.2.3 Test login for password monitoring by Windows

Tab: **Configuration ▸ Tools ▸ Security settings ▸ Login/Password protection ▸ Test login**

The user's Windows password must be entered in this dialog window when enabling the option **Password monitoring by Windows***(see Chapter 3.2.2.2, page 83)*. The test login will be used to check whether the user name matches the Windows user name.

User

Shows the current user name.

Windows password

Entry of the Windows password.

It is only if when the test login is successful that the **Password monitoring by Windows** can be used.

3.2.2.4 Modifications

Tab: **Configuration ▸ Extras ▸ Security settings ▸ Modifications**

On the tab **Modifications** it can also be defined whether a modification reason or comment must be given on the modifications to determinations.

Recommended settings

[Set]

Sets the parameters to the default settings.

Comment on modification of determinations

If this check box is **activated** then each time that a determination is modified a modification reason and a modification comment must be entered; these are saved in the determination and shown in the database in the subwindow **Information** on the tab **Determination**.

Selection	**on** | **off**
Default value	**off**

3.2.2.5 Signatures

Tab: **Configuration ▸ Tools ▸ Security settings ▸ Signatures**

On the tab **Signatures** the parameters for the electronic signatures can be configured.

Recommended settings

[Set]

Sets the parameters to the default settings.

Inactivity delay

on | off (Default value: **off**)

If this check box is **activated** then the dialog window for signing will be automatically closed when the entered time limit has expired.

Range	**1 ... 60 min**
Default value	**10 min**

Remove password after signature

on | off (Default value: **off**)

If this check box is **activated** then the password must be entered again after each signature.

Sign each determination separately

on | off (Default value: **off**)

If this check box is **activated** then each determination contained in the determination overview must be signed individually.

3.2.2.6 Default reasons

Tab: **Configuration ▸ Tools ▸ Security settings ▸ Default reasons**

On the tab **Default reasons** the reasons are defined that have to be entered when determinations have to be signed or when determinations have to be modified.

Category

Selection of the category for which the reasons are to be defined.

Selection	**Signature Level 1** | **Signature Level 2** | **Modification of determination**
Default value	**Signature Level 1**

Reasons

Shows the reasons defined for the selected category.

Input	**50 characters**

Moves text upward (modifies sequence).

Moves text downward (modifies sequence).

[New]

Adds a new reason.

[Edit]

Edits the selected reason.

[Delete]

Deletes the selected reason.

3.2.2.7 Sending E-mail

Dialog window: **Configuration ▸ Tools ▸ Security settings ▸ Login/Password protection ▸ [E-mail...] ▸ Send E-mail**

E-mail address

E-mail address of the recipient.

Input	**200 characters**

Subject

Title for describing the message.

Input	**200 characters**

Message

The message defined here will be transmitted as an E-mail if the maximum permitted number of incorrect login attempts is exceeded.

The Text editor for entering or changing the message is opened with or by double-clicking into the text field.

Selection	**Text (unlimited)**

Sender

E-mail address

E-Mail address of the sender.

Input	**200 characters**

SMTP server

Address of SMTP mail server.

Input	**200 characters**

Port

Port number of the SMTP mail server.

Range	**1 ... 65536**
Default value	**25**

Authentication

on | off (Default value: **off**)

Check box for activating the authentication of the sender when sending the E-mail or selection of the authentication method.

Selection	**SMTP | SMTP after POP**
Default value	**SMTP**

POP server

Address of POP mail server.

Input	**200 characters**

Port

Port number of the POP mail server.

Range	**1 ... 65536**
Default value	**110**

User

Name of the user for access to mail server. The name need not agree with the Windows user name.

Input	**200 characters**

Password

Password for the access to the mail server. This password does not necessarily have to be identical to the Windows password.

Input	**200 characters**

3.2.3 Program administration

3.2.3.1 Program administration

Dialog window: **Configuration ▸ Tools ▸ Program administration**

Overview

In the dialog window **Program administration** backup directories and licenses can be managed.

Tabs

The parameters for program administration are defined on the following tabs:

- *Backup directories*
  List of the defined backup directories.
- *Clients*
  List of computers on which**tiBase** is installed.
- *Licenses*
  List of installed licenses with number of clients. This tab is only shown on the server of a client/server installation.

3.2.3.2 Backup directories

3.2.3.2.1 Backup directories

Tab: **Configuration ▸ Tools ▸ Program administration ▸ Backup directories**

Table with the defined backup directories. With a click on the column title the table can be sorted according to the selected column in either increasing or decreasing sequence. The directory **Default backup directory** is generated during installation.

Note

The following buttons are activated only when **tiBase** is running on the server; they are deactivated for the individual clients.

[New]

Adds a new backup directory *(see Chapter 3.2.3.2.2, page 92)*.

[Edit]

Edits the selected backup directory *(see Chapter 3.2.3.2.3, page 93)*.

[Delete]

Deletes the selected backup directory.

Note

The **Default backup directory** cannot be deleted.

3.2.3.2.2 Create new backup directory

Dialog window: **Configuration ▸ Tools ▸ Program administration ▸ Backup directories ▸ [New] ▸ New backup directory**

Name

Name for the backup directory.

Input	**50 characters**

Directory

Entry or selection (with ...) of the path for the backup directory.

Input	**1000 characters**

Note

If the backup directory is on a network drive the saving date should be added manually to the **Backup name** because the saving date information is not available when the directory is restored.

Note

Make sure that you have read and write access rights on the selected directory.

3.2.3.2.3 Edit backup directory

Dialog window: **Configuration ▸ Tools ▸ Program administration ▸ Backup directories ▸ [Edit] ▸ Edit backup directory**

Name

Name for the backup directory.

Input	**50 characters**

Note

The **Default backup directory** generated during installation cannot be renamed.

Directory

Entry or selection (with ...) of the path for the backup directory.

Input	**1000 characters**

Note

If the backup directory is on a network drive the saving date should be added manually to the **Backup name** because the saving date information is not available when the directory is restored.

Note

Make sure that you have read and write access rights on the selected directory.

3.2.3.3 Clients

Tab: **Configuration ▸ Tools ▸ Program administration ▸ Clients**

Table with information about the computers on which**tiBase** is installed. The table cannot be edited. With a click on the column title the table can be sorted according to the selected column in either increasing or decreasing sequence.

Client ID

Shows the ID for the client that has been entered for the client/server installation.

Computer name

Shows the name of the computer on which the client has been installed.

Status

Shows whether **tiBase** has been started (**active**) or not (**inactive**).

> **Note**
>
> The contents of the tab **Clients** can be displayed, even if **tiBase** is not running, by using the shortcut Clients in the directory **..\\Metrohm\\tiBase\\bin** (only available on the server).

3.2.3.4 Add licenses

Dialog window: **Configuration ▸ Tools ▸ Program administration ▸ Licenses ▸ [Add licenses]**

The menu **Tools ▸ Program administration ▸ Licenses ▸ [Add licenses]** in the program part **Configuration** opens the dialog window **Add licenses** in which the new license code can be entered.

License code

Entry of the license code.

3.2.3.5 Licenses

Tab: **Configuration ▸ Tools ▸ Program administration ▸ Licenses**

> **Note**
>
> In client/server systems this tab is only visible on the server and only for members of the **Administrators** user group.

License code

Shows the entered license code.

Number of licenses

Shows the number of clients to have been enabled with the license code.

[Add licenses]

Adds new, additional licenses. The dialog window **Add licenses** opens.

License code

Entry of the license code.

3.3 Configuration data

3.3.1 Export/Import

3.3.1.1 Export configuration data

Dialog window: **Configuration ▸ File ▸ Export… ▸ Export configuration data**

With **File ▸ Export…** the dialog window **Export configuration data** opens, in which the following parts of the configuration database can be selected for export:

Configuration views

on | off (Default value: **on**)

Exports saved configuration views *(see Chapter 4.1.7, page 115)*.

Database views

on | off (Default value: **on**)

Exports saved database views *(see Chapter 4.1.7, page 115)*.

Control chart templates

on | off (Default value: **on**)

Exports saved control card templates *(see Chapter 4.4.3.1, page 169)*.

Curve overlay templates

on | off (Default value: **on**)

Exports saved curve overlay templates *(see Chapter 4.4.2.1, page 164)*.

Export template

on | off (Default value: **on**)

Export the saved export template

Security settings

on | off (Default value: **on**)

Exports saved security settings *(see Chapter 3.2.2.1, page 82)*.

User administration

on | off (Default value: **on**)

Exports saved user administration *(see Chapter 3.2.1.1, page 74)*.

[OK]

The dialog window **Save** for saving data opens, in which the name and directory for the export file must be entered. The selected configuration data is then saved in a file with the extension **.mcfg**.

3.3.1.2 Import configuration data

Dialog window: **Configuration ▸ File ▸ Import… ▸ Import configuration data**

With **File ▸ Import…** and after selection of the file ***.mcfg** to be imported, the dialog window **Import configuration data** opens, in which the parts of the configuration database present in the export file can be selected for import:

Note

Data that is not present in the export file cannot be selected.

Configuration views

on | off (Default value: **on**)

Imports saved configuration views *(see Chapter 4.1.7, page 115)*.

Database views

on | off (Default value: **on**)

Imports saved database views *(see Chapter 4.1.7, page 115)*.

Control chart templates

on | off (Default value: **on**)

Imports saved control card templates *(see Chapter 4.4.3.1, page 169)*.

Curve overlay templates

on | off (Default value: **on**)

Imports saved curve overlay templates *(see Chapter 4.4.2.1, page 164)*.

Export template

on | off (Default value: **on**)

Export the saved export template

Security settings

on | off (Default value: **on**)

Imports security settings *(see Chapter 3.2.2.1, page 82)*.

User administration

on | off (Default value: **on**)

Imports user administration *(see Chapter 3.2.1.1, page 74)*.

[OK]

The selected data is imported.

3.3.2 Backup/Restore

3.3.2.1 Backup configuration data automatically

Dialog window: **Configuration ▸ File ▸ Save ▸ Automatically ▸ Backup configuration data automatically**

Automatic backup

on | off (Default value: **off**)

If this check box is **activated** then the configuration database will be backed up automatically in the defined backup directory at the required time interval. The whole configuration database is backed up.

If this check box is **deactivated** then the following parameters cannot be edited.

Last backup

Shows the date and time of the last configuration data backup.

Next backup

Date and time at which the next backup is to be carried out. The ... opens the window **Next backup** to select the date *(see Chapter 2.5.1, page 67)*.

Default value	**Last backup+ 1 month**

Interval

Entry of the time interval after which an automatic backup will take place. After each automatic or manual backup the interval entered here will be added to the date of the **Last backup** and shown in the field **Next backup**.

Range	**1 ... 999**
Default value	**1**
Selection	**Day(s)** | **Week(s)** | **Month(s)** | **Year(s)**
Default value	**Month(s)**

Backup directory

Selection of a pre-defined backup directory *(see Chapter 3.2.3.2.1, page 91)*.

Note

Make sure that you have read and write access rights on the selected directory.

3.3.2.2 Backup configuration data manually

Dialog window: **Configuration ▸ File ▸ Save ▸ Manually ▸ Backup configuration file manually**

Backup target

Backup directory

Selection of a pre-defined backup directory *(see Chapter 3.2.3.2.1, page 91)*.

Note

Make sure that you have read and write access rights on the selected directory.

Backup name

Selection of an existing name for the backup file or entry of a new name. If an existing backup file is selected it will be overwritten.

Input	**50 characters**
Selection	**Backup names**

Note

If the backup directory is on a network drive, the backup date should be added manually to the **Backup name** because the backup date information is not available when the directory is restored.

[Start]

Start manual backup of the complete configuration database.

3.3.2.3 Restore configuration data

Dialog window: **Restore configuration data**

Dialog window "Restore configuration data"

Backup directory

Selection of a directory predefined in the Program administration that contains the backed up configuration database.

Selection	**Backup directories**

Backup name

Selection of a backup file.

Selection	**Backup files**

Backup date

Shows the time at which the configuration database was backed up. If the backup file is located on a network drive, this information is not available.

Database name

Shows the name of the configuration database. If the backup file is located on a network drive, this information is not available.

Size

Shows the size of the configuration database in KB.

Save as

Name under which the configuration database will be restored.

[Start]

Starts the recovery of the configuration database. After the start, a progress bar appears in the window. When the backup has been completed the dialog window closes automatically.

3.3.3 Options

3.3.3.1 Options - Overview

Dialog window: **Configuration ▸ Tools ▸ Options ▸ Options**

Under **Tools ▸ Options**, general program properties can be set on the following tabs:

- *General*
  Selects dialog language.
- *Save*
  Saves settings on exiting the program.
- *PDF*
  Settings for PDF files.

3.3.3.2 Options - General

Tab: **Configuration ▸ Tools ▸ Options ▸ Options ▸ General**

Dialog language

Dialog language

Selection of the dialog language.

Selection	**German | English | additional languages (dependent on installed language patches)**
Default value	**English**

Note

For the altered setting to become effective the program must be restarted.

3.3.3.3 Options - Save

Tab: **Configuration ▸ Tools ▸ Options ▸ Options ▸ Save**

Save on exiting

Here you can define the settings to be saved when the program is exited. If the corresponding check box is **activated**, the current view with its settings will be saved automatically when the program is exited. If the corresponding check box is **deactivated**, then any modifications that may have been made to the view will not be saved and at the next program start the original, manually saved view will be loaded.

Configuration settings

on | off (Default value: **off**)

Switches Save configuration view on/off when exiting the program.

Database settings

on | off (Default value: **off**)

Switches Save database view on/off when exiting the program.

3.3.3.4 Options - PDF

Tab: **Configuration ▸ Tools ▸ Options ▸ Options ▸ PDF**

Security permissions for PDF files

Content copying or extraction allowed

on | off (Default value: **on**)

If this option is **switched off** none of the PDF file contents can be copied or extracted.

Printing allowed

on | off (Default value: **on**)

If this option is **switched off** the PDF file cannot be printed out.

Adding or changing comments allowed

on | off (Default value: **on**)

If this option is **switched off** comments and form fields can neither be added nor altered.

Modifying the document allowed

on | off (Default value: **on**)

If this option is **switched off** no changes can be made to the PDF file.

3.4 Subwindow Import processes

3.4.1 Import processes - General

Subwindow: **Configuration ▸ Import processes**

The subwindow **Import processes** shows the details for reading-in PC/LIMS reports of different analysis instruments in tabular form. It is always shown in the program part **Configuration**, and cannot be removed from the Configuration view.

The subwindow can be enlarged or made smaller to suit by dragging the separating bar between the windows.

By clicking on the button ☐ above at the right, the subwindow can be maximized so that only one subwindow is displayed in the main window. The original view of two subwindows is restored when the ☐ button is pressed in the maximized subwindow again.

3.4.2 Import processes - Table

Subwindow: **Configuration ▸ Import processes**

Table view

The table cannot be edited directly. With a click on the column title the table can be sorted according to the selected column in either increasing or decreasing sequence. The table view can be adapted with the left-hand mouse button as follows:

- **Drag the margin between column titles:**
  Sets the column width
- **Double-click on the margin between column titles**:
  Sets the optimal column width
- **Drag the column title**:
  Moves the column to the required location

If the contents of a field is larger than the column width then the whole contents will be shown as a Tooltip if the mouse cursor is kept on the field.

Contents

The table shows the following information about reading-in PC/LIMS reports as standard:

Name

Name for the data import process (e.g. user group, user, devices, methods, etc.)

Data source

Source directory with PC/LIMS reports to be read-in automatically from this directory into a database. With the symbol ... the dialog window **Search** opens, in which the source directory is selected and then can be entered into the field **Directory**.

Database

Name of the tiBase 1.0 database, in which the read-in reports are saved.

Comment

Optional comment.

Status

Status of the import process.

Selection	**started** | **stopped** | **inactive**

started
The import process has been started manually or automatically. The status is displayed in green lettering.

stopped
The import process has been stopped manually or automatically by an error. The status is displayed in red lettering. Additionally the background of the line number is also shown in red.

inactive
The option **Start automatically** is disabled for this import process. The import process has to be started manually. The status as well as all line entries are displayed in gray lettering.

Functions

The menu **Edit** beneath the table contains the following menu items:

Start import	Start import for selected data source.
Stop import	Stop import for selected data source.
New…	Define new import process.
Delete	Delete selected import process.
Properties…	Edit selected import process.

3.4.3 Import processes - Properties

Dialog window: **Configuration ▸ Import processes ▸ [Edit] ▸ New / Properties... ▸ Properties Import process**

In this dialog window the details for the import of PC/LIMS reports are defined.

Name

Name for the data import process (e.g. user group, user, devices, methods, etc.)

Data source

Source directory with PC/LIMS reports to be read-in automatically from this directory into a database. With the symbol ... the dialog window **Search** opens, in which the source directory is selected and then can be entered into the field **Directory**.

Database

Name of the tiBase 1.0 database, in which the read-in reports are saved.

Comment

Optional comment.

Start automatically

on | off (Default value: **on**)

If this check box is activated, the data import is started automatically at the start of the program.

File options

Delete file

If this option is enabled, the reports are deleted after the data import.

Move file

If this option is enabled, the reports are saved in a selected directory after the data import.

Directory

Directory, in which the PC/LIMS reports are saved after having been imported to the database. With the symbol ... the dialog window **Search** opens, in which the directory is selected and then can be entered into the field **Directory**.

3.5 Subwindow Import protocol

3.5.1 Import protocol - General

Subwindow: **Configuration ▸ Import protocol**

The subwindow **Import protocol** shows information about the data import, error messages and warnings recorded since the last program start. It is always shown in the program part **Configuration**, and cannot be removed from the Configuration view.

The subwindow can be enlarged or made smaller to suit by dragging the separating bar between the windows.

By clicking on the button ❑ above at the right, the subwindow can be maximized so that only one subwindow is displayed in the main window. The original view of two subwindows is restored when the ❑ button is pressed in the maximized subwindow again.

3.5.2 Import protocol - Table

Subwindow: **Configuration ▸ Import protocol**

Table view

The table cannot be edited directly. With a click on the column title the table can be sorted according to the selected column in either increasing or decreasing sequence. The table view can be adapted with the left-hand mouse button as follows:

- **Drag the margin between column titles:**
  Sets the column width
- **Double-click on the margin between column titles**:
  Sets the optimal column width
- **Drag the column title**:
  Moves the column to the required location

If the contents of a field is larger than the column width then the whole contents will be shown as a Tooltip if the mouse cursor is kept on the field.

Contents

The table shows the following information about reading-in PC/LIMS reports as standard:

Type

information

warning

error

Date

Date of the log entry

Import process

Name of the corresponding import process

Data source

Directory, from which the PC/LIMS report data has been read-in.

Database

Name of the tiBase 1.0 database, in which the read-in reports are saved.

Action

Selection	**OK** | **Import** | **Delete** | **Move**

OK
The PC/LIMS report has successfully been imported, moved or deleted.

Import
tiBase cannot import the selected PC/LIMS reports.

Delete
tiBase cannot delete the selected PC/LIMS reports.

Move
tiBase cannot move the selected PC/LIMS reports.

Details

Detailed information on the log entry.

Functions

The menu **Edit** beneath the table contains the following menu items:

Delete all messages	Delete all messages in the window **Import protocol**.
Options...	Open the dialog window **Properties Import protocol**.

3.5.3 Import protocol - Properties

Dialog window: **Configuration** ▸ **Import protocol** ▸ **[Edit]** ▸ **Options...**

Filter options

Show information

on | off (Default value: **off**)

If this check box is activated, information on the import process is shown in the table.

Show warnings

on | off (Default value: **off**)

If this check box is activated, warnings are shown in the table.

Show errors

on | off (Default value: **off**)

If this check box is activated, errors during the import are shown in the table.

Maximum number of log entries

In this field the maximum number of log entries to be listed in the table **Import protocol** is entered.

If the number of entries exceeds the value entered, rolling recording takes place. This means, that the oldest entry is deleted when a new log saying is incoming.

Range	**20 ... 1000**
Default value	**100**

Note

If during a rolling recording an error or warning not remedied yet has been deleted, the warning or error will be newly logged as soon as the corresponding import process is started again.

4 Database

4.1 Database - General

4.1.1 Database - Definition

Program part: **Database**

Definition

The term **Database** is used in **tiBase** to refer to the program part in which the determinations saved in the databases can be displayed, managed, evaluated, reprocessed and printed out. The **determination databases** are also referred to as **databases**; they can, in contrast to the **configuration database**, be generated by the user and contain the determination data. Included among such determination data is the method data used for the determination, the measuring data generated during the determination and the results calculated from it.

Organization

In **Local Server Systems** (**tiBase 1.0 full**) the databases are stored on the drives administered by the computer and are only available to those users registered on that computer who have the appropriate access rights.

In **Client/Server systems** (**tiBase 1.0 multi**) the databases are stored on drives administered centrally by the server and are available globally throughout the entire Client/Server system, i.e. all users with the appropriate access rights can use these databases.

4.1.2 Database - Desktop

Program part: **Database**

Database symbol

Clicking on the database symbol in the vertical bar on the left opens the program part **Database** while, at the same time the database symbol is shown in color. The upper left corner of the symbol contains a black field displaying the number of databases currently opened *(see Chapter 4.2.2, page 119)*.

Elements

The desktop of the program part **Database** comprises the following elements:

- Database-specific menu bar.
- Database-specific toolbar.
- Main window in which up to 6 subwindows can be displayed.

4.1.3 Database - Menu bar

4.1.3.1 Database - Main menus

Program part: **Database**

The menu bar in the program part **Database** includes the following main menu items:

- *File*
  Open and close databases, database management, printing.
- *Edit*
  Copy selected lines in the determination overview onto the clipboard, mark all lines.
- *View*
  Change layout, load view, save view, modify properties in the subwindows.
- *Determinations*
  Search, filter, sign, delete determinations; overlay curves, calibration curves, reprocess, etc.
- *Tools*
  Report templates, further templates.
- *Help*
  Open program help, display program information.

4.1.3.2 Database - Menu File

Program part: **Database**

Open...	Open database *(see Chapter 4.2.1, page 118)*.
Close all	Close all open databases *(see Chapter 4.2.6, page 120)*.
Exit	Close database *(see Chapter 4.2.6, page 120)*.
Database manager...	Manage determination databases *(see Chapter 4.3.1, page 120)*.
Print ▸	
Determination overview...	PDF file output of the determination overview *(see Chapter 4.5.2.11, page 244)*.

Report...	PDF file output of the report *(see Chapter 4.5.2.12, page 245)*.
Logout...	Logout user *(see Chapter 2.2.3, page 10)*.
Exit	End program.

4.1.3.3 Database - Menu Edit

Program part: **Database**

Copy	Copy the selected lines in the determination overview to the clipboard.
Select all	Select all lines in the current set of determinations in the determination overview.

4.1.3.4 Database - Menu View

Program part: **Database**

Update	Update determination overview.
Change layout...	Modify layout of loaded database view *(see Chapter 4.1.7.2, page 116)*.
Load view...	Load a saved database view *(see Chapter 4.1.7.3, page 116)*.
Save view...	Save the loaded database view *(see Chapter 4.1.7.4, page 117)*.
Split vertically	Split database window vertically and display two databases side by side *(see Chapter 4.2.4, page 120)*.
Split horizontally	Split database window horizontally and display two databases, one above the other *(see Chapter 4.2.5, page 120)*.
Unsplit	Undo the splitting of the database window *(see Chapter 4.2.3, page 120)*.
Properties ▸	
Column display	Define column display for the **Determination overview** table *(see Chapter 4.5.1.3, page 201)*.
Properties Results	Set properties for the subwindow **Results** *(see Chapter 4.7, page 260)*.
Toolbar	Switch toolbar display on/off.

4.1.3.5 Database - Menu Determinations

Program part: **Database**

Comment...	Enter comment on the selected determination *(see Chapter 4.5.2.2, page 206)*.
Search	Open the window **Search** for searching for determinations *(see Chapter 4.5.2.3, page 207)*.
Filter ▸	
Last filter	Use last quick or special filter again *(see Chapter 4.5.2.4.2, page 210)*.
Quick filter	Use quick filter with the content of the selected table cell *(see Chapter 4.5.2.4.3, page 210)*.
Special filter...	Open the window **Special filter** for the definition of user-specific filters *(see Chapter 4.5.2.4.4, page 210)*.
All statistics records	Display all related statistics data sets of the focused determination *(see Chapter 4.5.2.4.5, page 212)*.
Remove filter	Removes current filter *(see Chapter 4.5.2.4.6, page 212)*.
Sign ▸	
Signature 1...	Sign selected determinations on level 1 *(see Chapter 2.3.3, page 13)*.
Signature 2...	Sign selected determinations on level 2 *(see Chapter 2.3.4, page 14)*.
Show signatures...	Show all signatures for the focused determination *(see Chapter 4.5.2.5.4, page 218)*.
Delete signatures 2...	Delete signatures at level 2 of the focused determination *(see Chapter 2.3.5, page 16)*.
Send to...	Send selected determinations per E-mail *(see Chapter 4.5.2.7, page 242)*.
Export...	Export selected determinations *(see Chapter 4.5.2.8, page 243)*.
Import...	Import selected determinations *(see Chapter 4.5.2.9, page 243)*.
Show history	Show all versions of the focused determination in the determination overview *(see Chapter 4.5.2.13, page 246)*.
Make current	Make the old version selected in the history view the current version again *(see Chapter 4.5.2.14, page 246)*.

Control chart...	Display control chart and statistical evaluation of the selected determination *(see Chapter 4.5.2.16, page 248)*.
Overlay curves...	Overlay curves of the selected determinations *(see Chapter 4.5.2.17, page 248)*.
Reprocess...	Reprocess selected determinations *(see Chapter 4.5.2.6.1, page 220)*.
Delete	Delete selected determinations *(see Chapter 4.5.2.10, page 243)*.

4.1.3.6 Database - Menu Tools

Program part: **Database**

Report templates ▸	
New ▸	
Form report	Open the window **Report template** with an empty form report *(see Chapter 4.4.1.3, page 130)*. This menu item is disabled as long as the database is empty.
Open...	Open report template to edit *(see Chapter 4.4.1.3, page 130)*. This menu item is disabled as long as the database is empty.
Manager...	Manage report templates *(see Chapter 4.4.1.1.1, page 128)*.
Templates ▸	
Control chart templates...	Manage templates for control charts *(see Chapter 4.4.3, page 169)*.
Curve overlay templates...	Manage curve overlay templates *(see Chapter 4.4.2.1, page 164)*.
Export templates...	Manage export templates *(see Chapter 4.4.4.1, page 173)*.

4.1.3.7 Help Menu

Program part: **Configuration / Database**

tiBase Help	Open tiBase help.
About	Displays information about the program and the installation.

4.1.4 Database - Toolbar

Program part: **Database**

Open...	Open database *(see Chapter 4.2.1, page 118)*.
Exit	Close database *(see Chapter 4.2.6, page 120)*.
Database manager...	Manage determination databases *(see Chapter 4.3.1, page 120)*.
Logout...	Logout user *(see Chapter 2.2.3, page 10)*.
Copy	Copy the selected lines in the determination overview to the clipboard.
Update	Update determination overview.
Change layout...	Modify layout of loaded database view *(see Chapter 4.1.7.2, page 116)*.
Load view...	Load a saved database view *(see Chapter 4.1.7.3, page 116)*.
Save view...	Save the loaded database view *(see Chapter 4.1.7.4, page 117)*.
Split vertically	Split database window vertically and display two databases side by side *(see Chapter 4.2.4, page 120)*.
Split horizontally	Split database window horizontally and display two databases, one above the other *(see Chapter 4.2.5, page 120)*.
Unsplit	Undo the splitting of the database window *(see Chapter 4.2.3, page 120)*.
Comment	Enter comment on the selected determination *(see Chapter 4.5.2.2, page 206)*.
Search	Open the window **Search** for searching for determinations *(see Chapter 4.5.2.3, page 207)*.
Filter/Last filter	Use last quick or special filter again *(see Chapter 4.5.2.4.2, page 210)*.
Filter/Quick filter	Use quick filter with the content of the selected table cell *(see Chapter 4.5.2.4.3, page 210)*.
Filter/Special filter...	Open the window **Special filter** for the definition of user-specific filters *(see Chapter 4.5.2.4.4, page 210)*.
Filter/Remove filter	Removes current filter *(see Chapter 4.5.2.4.6, page 212)*.

Import...	Import selected determinations (*.txt or *.tdet)
Sign/Signature 1...	Sign selected determinations on level 1 *(see Chapter 2.3.3, page 13)*.
Sign/Signature 2...	Sign selected determinations on level 2 *(see Chapter 2.3.4, page 14)*.
Show history	Show all versions of the focused determination in the determination overview *(see Chapter 4.5.2.13, page 246)*.
Make current	Make the old version selected in the history view the current version again *(see Chapter 4.5.2.14, page 246)*.
Control chart...	Display control chart and statistical evaluation of the selected determination *(see Chapter 4.5.2.16, page 248)*.
Overlay curves...	Overlay curves of the selected determinations *(see Chapter 4.5.2.17, page 248)*.
Reprocess...	Reprocess selected determinations *(see Chapter 4.5.2.6.1, page 220)*.
Delete	Delete selected determinations *(see Chapter 4.5.2.10, page 243)*.
Report templates/ Open...	Open report template to edit *(see Chapter 4.4.1.3, page 130)*.
tiBase Help	Open tiBase help.

4.1.5 Database - Subwindows

Program part: **Database**

Selection

The following subwindows can be displayed in the main window:

- *Determination overview*
  Overview of the determinations saved in the database. This subwindow is permanently on display.
- *Information*
  Display of information for focused determination.
- *Result*
  Display of results for focused determination.
- *Curves 1...5*
  Display of curves for focused determination.

Presentation

The subwindows can be enlarged or made smaller to suit by dragging the separating bar between the windows.

By clicking on the button ❑ above at the right, the subwindows can be maximized so that only one subwindow is displayed in the main window. The original view of all subwindows is restored when the ❑ button in the maximized subwindow is clicked on again.

If you change the view in the subwindows, these changes will remain in effect after the database is closed and reopened.

4.1.6 Database - Functions

Program part: **Database**

In the program part **Database**, the following functions can be carried out:

Views

- *Modify the layout of the database view*
- *Load database view*
- *Save database view*
- *Rename database view*
- *Delete database view*

Database manager

- *Create new database*
- *Rename database*
- *Edit database properties*
- *Save database*
- *Restore database*
- *Delete database*

Determinations

- *Overview of functions*

Templates

- *Edit report template*
- *Edit templates for control charts*
- *Edit curve overlay templates*
- *Edit export templates*

4.1.7 Views

4.1.7.1 Views - General

Program part: **Configuration / Database**

Definition

The term **View** defines the content and design of the main window in the program part **Database** (the program part Configuration has only one view). The following elements belong to a view:

- Number, arrangement, sequence and size of the subwindows.
- Representation within the individual subwindows, i.e. column sequence, column width, sorting and filter.

Functions

The following functions are possible for views:

- *Change layout*
  Defines the number, arrangement and sequence of the subwindows for the current view.
- *Save view*
  Save current view.
- *Load view*
  Load view saved.
- *Rename view*
  Rename view saved.
- *Delete view*
  Delete view saved.
- *Toolbar*
  Enable or disable the toolbar.

Automatic save

If in the programm part Configuration under **Tools ▸ Options** on the **Save** tab, the respective point under **Save on closing** is enabled, then the current view of the program will be saved automatically.

Automatic load

The standard procedure is that the view saved when the program is terminated will be loaded automatically the next time that the program is opened. As an alternative a standard view can be defined for each user group that is loaded automatically the first time that the program part is opened.

The standard procedure is that the view with the following subwindow is opened with the very first program start:

- **Configuration**
  Import processes, **Import protocols**
- **Database**
  Determination overview, **Curve #**, **Information**, **Results**

Export/Import

Views can also be exported and imported. In this way these views can be exchanged between different client / server systems.

4.1.7.2 Change layout

Dialog window: **Database ▸ View ▸ Change layout… ▸ Change layout**

With the symbol or the menu item **View ▸ Change Layout...** the dialog window **Change layout** is opened.

Select layout

Selects a graphical symbol for the number, arrangement and sequence of the subwindows.

Selection	**Selection of the possible combinations**

Available subwindows

Displays the subwindows that are still available for displaying the view.

Selection	**Subwindow selection**

Displayed subwindows

Displays the subwindows that are shown in the view.

Selection	**Subwindow**

>>

Add the selected subwindow to the view.

<<

Remove the selected subwindow from the view.

Move the selected subwindow upward (modifies sequence).

Move the selected subwindow downward (modifies sequence).

4.1.7.3 Load view

Dialog window: **Database ▸ View ▸ Load view… ▸ Load view**

With the symbol or the menu item **View ▸ Load view...** the dialog window **Load view** is opened.

Name

Name of the view that should be loaded.

[Rename]

Rename the selected view.

[Delete]

Delete the selected view.

[Load]

Load the selected view.

4.1.7.4 Save view

Dialog window: **Database ▸ View ▸ Save view… ▸ Save view**

With the symbol or the menu item **View ▸ Save view…** the dialog window **Save view** is opened.

Name

Name under which the view is to be saved.

[Rename]

Rename the selected view.

[Delete]

Delete the selected view.

[Save]

Saves the view under given name. The saved views are globally valid and available for client/server systems.

4.1.7.5 Rename view

Dialog window: **Database ▸ View ▸ Rename view… ▸ Rename view**

To be able to rename a view, either open the dialog window **Load View** or **Save View** and press the **[Rename]** button. The **Rename View** window is opened.

Rename view to

Enter a new name for the view.

Input	**50 characters**

4.1.7.6 Delete view

Function: **Database ▸ View ▸ Load/Save view… ▸ [Delete]**

To be able to delete a view, either open the dialog window **Load view** or **Save view** and press the **[Delete]** button. The delete procedure must then be confirmed.

4.2 Database display

4.2.1 Open database

Dialog window: **Database ▸ File ▸ Open… ▸ Open database**

The symbol or the menu item **File ▸ Open…** is used to open the **Open database** window, in which one of the databases available on the server (or on the local server) that is to be opened can be selected.

Database table

The database table contains information concerning all determination databases. The table cannot be edited. With a click on the column title (Columns **Name**, **Number of records**, **Size**, **Last backup**, **Next backup**, **Comment**), the table can be sorted according to the selected column in increasing or decreasing sequence.

Name

Name of the database.

Number of records

Shows the number of data sets in the database.

Size

Shows the size of the database in KB.

Editable

Shows whether or not the database can be edited by the user currently logged in.

Comment

Shows remarks about the database.

Opening the database

Database name

Name of the method to be opened. If a database is selected from the table, the name of the database will be entered automatically in this field. It can however also be entered manually.

Input	**50 characters**

[Open]

Opens the selected database and shows its data sets in the Determination overview. The database name is displayed in the title bar of the program, the number of currently opened databases is displayed in the left upper corner of the database symbol.

Note

A maximum of 4 databases can be opened, but only 2 can be displayed at the same time. Databases that are open at the time the program is ended will be automatically opened the next time the program is started.

4.2.2 Select database

Program part: **Database**

The number of the currently opened databases is displayed in the left upper corner of the database symbol. If 2 or more databases are opened, then these databases, which can be displayed either next to one another or one below the other, can be selected with the aid of the database symbol.

No database is opened. **No database loaded** is displayed in the main window.

One database is opened and is displayed in the main window.

Two databases are opened. Normally only one database is displayed in the main window but the option exists of displaying two databases at once, either next to the another or one below the other.

A menu with the currently opened databases is displayed by clicking with either the left or right mouse button on the database symbol. The databases displayed in the main window are marked with a checkmark. Clicking on the desired database displays it in the main window in the place of the previously selected one.

4.2.3 Display single database

Menu item: **Database ▸ View ▸ Unsplit**

In the default settings, the most recently opened database is displayed singularly in the main window. If the display of two windows is enabled, then the symbol or the menu item **View ▸ Unsplit** can be used to switch back to the display of just one single database.

4.2.4 Display databases next to one another

Menu item: **Database ▸ View ▸ Split vertically**

With the symbol or the menu item **View ▸ Split vertically** two databases are displayed next to one another in the main window.

4.2.5 Display databases one below the other

Menu item: **Database ▸ View ▸ Split horizontally**

With the symbol or the menu item **View ▸ Split horizontally** two databases can be displayed one below the other in the main window.

4.2.6 Close database

Menu items: **Database ▸ File ▸ Close / Close all**

Close single database

With the symbol or the menu item **File ▸ Close** can be used to close the focused database.

Close all databases

All the opened databases are closed with the menu item **File ▸ Close all**.

4.3 Manage databases

4.3.1 Manage databases

Dialog window: **Database ▸ File ▸ Database manager… ▸ Database manager**

The symbol or the menu item **File ▸ Database manager…** is used to open the window **Database manager**, in which one user with corresponding access rights can administer databases.

Database table

The database table contains information concerning all determination databases. The table cannot be edited. With a click on the column title (Columns **Name**, **Number of records**, **Size**, **Last backup**, **Next backup**, **Comment**), the table can be sorted according to the selected column in increasing or decreasing sequence.

Name

Name of the database.

Number of records

Shows the number of data sets in the database.

Size

Shows the size of the database in KB.

Last backup

Shows the date and time of the last database backup.

Next backup

Shows the date and the time at which the next backup is to be carried out.

Comment

Shows remarks about the database.

Window menus and functions

The menu **[Edit]** beneath the database table contains the following menu items:

New…	Create new database *(see Chapter 4.3.2, page 122)*.
Delete	Delete the selected database *(see Chapter 4.3.4, page 122)*.
Rename…	Rename the selected database *(see Chapter 4.3.3, page 122)*.

[Properties]

Opens the window **Database manager** for editing the database selected in the table *(see Chapter 4.3.5.1, page 123)*.

[Backup]

Opens the window **Backup the database** for backing up the database selected in the table *(see Chapter 4.3.6, page 126)*.

[Restore:]

Opens the window **Restoration of databases** for restoring backed-up databases *(see Chapter 4.3.7, page 127)*.

[Exit]

Closes the window **Database manager.**

4.3.2 Create new database

Dialog window: **Database ▸ File ▸ Database manager… ▸ Database manager ▸ [Edit] ▸ New… ▸ New database**

The menu item **[Edit] ▸ New…** can be used to open the window **New database**, in which a name for the new database must be entered.

Name

Name of the new database.

Input	**50 characters**
Default value	**New database #**

Note

The database name must be unambiguous in the whole Client/Server system.

Clicking on **[OK]** will open the window **Database properties** for editing the database properties.

4.3.3 Rename database

Dialog window: **Database ▸ File ▸ Database manager… ▸ Database manager ▸ [Edit] ▸ Rename… ▸ Rename database**

The menu item **[Edit] ▸ Rename…** is used to open the window **Rename database** for renaming the selected database.

Rename database 'Name' to

Entry of the new database name.

Input	**50 characters**

Note

The database name must be unambiguous in the whole Client/Server system.

4.3.4 Delete database

Menu item: **Database ▸ File ▸ Database manager… ▸ Database manager ▸ [Edit] ▸ Delete**

The menu item **[Edit] ▸ Delete** is used to delete the selected database.

Note

Databases that are open cannot be deleted.

4.3.5 Database properties

4.3.5.1 Database properties - Overview

Dialog window: **Database ▸ File ▸ Database manager... ▸ Database manager ▸ [Properties] ▸ Properties - Database - 'Database name'**

The properties for a database are set on the following tabs:

- *General*
  General information about the database.
- *Access rights*
  Access rights to the database for user groups.
- *Backup*
  Definition of backup monitoring and automatic backups.
- *Monitoring*
  Defines database monitoring.

4.3.5.2 Database properties - General

Tab: **Database ▸ File ▸ Database manager... ▸ Database manager ▸ [Properties] ▸ Properties - Database - 'Database name' ▸ General**

General information about the database.

Comment

Freely definable remarks about the database.

Input	**250 characters**

Number of records

Shows the number of data sets in the database.

Size

Shows the size of the database in KB.

Created

Shows the date and time of the creation of the database.

Created by

Full name of the user who created the database.

Modified

Shows the date and time of the last modification of the database properties.

Modified by

Shows the name of the user (abbreviation) who carried out the modifications.

4.3.5.3 Database properties - Access rights

Tab: **Database ▸ File ▸ Database manager... ▸ Database manager ▸ [Edit] ▸ Properties - Database -'Database name' ▸ Access rights**

Access rights to the database for user groups.

User group

Shows the user groups defined in the user manager.

Read

on | off (Default value: **on**)

Enables/disables the right to open the database. The database can only be displayed, but not modified (records cannot be deleted or reprocessed).

Edit

on | off (Default value: **off**)

Enables/disables the right to edit the database. Records can be revised or deleted.

Note

If access for editing is enabled, then access rights for reading will also automatically be enabled. If access for editing is disabled, then access rights for reading will also automatically be disabled.

4.3.5.4 Database properties - Backup

Tab: **Database ▸ File ▸ Database manager... ▸ Database manager ▸ [Properties] ▸ Properties - Database - 'Database name' ▸ Backup**

Definition of backup monitoring and automatic backups.

Backup monitoring

on | off (Default value: **off**)

Enables/disables the backup monitoring for the selected database. If the check box **Backup monitoring** is enabled, then the field **Next backup** in the database table will be marked in **red** when the interval time elapses.

Last backup

Shows the date and time of the last database backup.

Next backup

Date at which the next backup must take place. The date can be selected by pressing ... in the dialog window **Select date**.

Input	**Date selection**
Default value	**Last backup + 1 month**

Interval

Entry of the interval for the backup monitoring. After each automatically or manually triggered backup, the interval entered here will be added automatically to the **Last backup** and the field **Next backup** will be automatically adjusted accordingly.

Range	**1 ... 999**
Default value	**1**
Selection	**day(s)** | **week(s)** | **month(s)** | **year(s)**
Default value	**month(s)**

Start backup automatically

on | off (Default value: **off**)

Automatic start of the backup for the database in the defined **Backup directory**.

Backup directory

Selection of a folder predefined in the **Program administration** for the automatic backup.

Selection	**Selection of the backup directory** | **Default backup directory**
Default value	**Default backup directory**

Note

Make sure that you have read and write access rights on the selected directory.

4.3.5.5 Database properties - Monitoring

Tab: **Database ▸ File ▸ Database manager... ▸ Database manager ▸ [Properties] ▸ Properties - Database - 'Database name' ▸ Monitoring**

Defines database monitoring.

Monitoring size

on | off (Default value: **off**)

Enables/disables size monitoring for the selected database. If this check box is activated then the field **Size** in the Database table will be shown in **red** when the limit value has been exceeded. A corresponding message also appears when the database is opened.

Maximum size

Maximum permitted database size in MB.

Range	**1 ... 2147483647 MB**
Default value	**500 MB**

Monitoring number of records

on | off (Default value: **off**)

Enables/disables the monitoring of the number of data sets for the selected database. If this check box is activated then the field **Number** in the Database table will be shown in **red** when the limit value has been exceeded. A corresponding message also appears when the database is opened.

Maximum number

Maximum permitted number of data sets for database.

Range	**1 ... 2147483647**
Default value	**1000**

4.3.6 Backup database manually

Dialog window: **Database ▸ File ▸ Database manager... ▸ Database manager ▸ [Backup] ▸ Database backup**

[Backup] is used to open the dialog window **Backup database**:

Backup target

Backup directory

Selection of a folder predefined in **Program administration** for the backup.

Selection	**Selection of the backup directory** | **Default backup directory**
Default value	**Default backup directory**

Note

Make sure that you have read and write access rights on the selected directory.

Backup name

Selection of an existing name for the backup file or entry of a new name. If an existing backup file is selected it will be overwritten.

Input	**50 characters**
Default value	**Backup-##**

Note

If the backup directory is on a network drive, the backup date should be added manually to the **Backup name** because the backup date information is not available when the directory is restored.

[Start]

Starts manual database backup.

4.3.7 Restore database

Dialog window: **Database** ▸ **File** ▸ **Database manager…** ▸ **Database manager** ▸ **[Restore]** ▸ **Restoring databases**

[Restore] is used to open the dialog window **Restore databases**:

Backup directory

Selection of a directory predefined in the **Program administration** that contains the backed up databases.

Selection	**Selection of the backup directory** | **Default backup directory**
Default value	**Default backup directory**

Backup name

Selection of a backup file.

Selection	**Select backup files**

Backup date

Shows the time at which the database was backed up. If the backup file is located on a network drive, this information is not available.

Database name

Shows the name of the database. If the backup file is located on a network drive, this information is not available.

Number of records

Shows the number of data sets in the database. If the backup file is located on a network drive, this information is not available.

Size

Shows the size of the database in KB.

Save as

Name under which the database is to be restored.

Input	**50 characters**
Default value	**New database ##**

[Start]

Start database recovery. After the start, a progress bar appears in the window. When the backup has been completed the dialog window closes automatically.

Note

Existing databases cannot be overwritten, i.e. they must first be deleted so that the database can be recovered under its old name.

4.4 Templates

4.4.1 Report templates

4.4.1.1 Manage report templates

4.4.1.1.1 Report template manager

Dialog window: **Database ▸ Tools ▸ Report templates ▸ Manager… ▸ Report template manager**

The menu item **Tools ▸ Report templates ▸ Manager…** is used to open the window **Report template manager**.

List of report templates

The list of report templates contains information about all the saved report templates. The table cannot be edited. With a click on the column title (Column **Name**, **Saved**, **Saved by**, **Comment**) the table can be sorted according to the selected column in increasing or decreasing sequence.

Name

Name of report template.

Saved

Date and time when the report template was saved.

Saved by

Short name of the user who saved the report template.

Comment

Comment on the report template.

Window menus

The menu **[Edit]** below the list of report templates contains the following menu items:

Rename…	Rename the selected report template *(see Chapter 4.4.1.1.2, page 129)*.
Copy	Copy the selected report template(s) *(see Chapter 4.4.1.1.3, page 130)*.
Delete…	Delete the selected report template(s) *(see Chapter 4.4.1.1.4, page 130)*.
Export…	Export the selected report template(s) *(see Chapter 4.4.1.1.5, page 130)*.
Import…	Import report templates *(see Chapter 4.4.1.1.6, page 130)*.

4.4.1.1.2 Rename report templates

Dialog window: **Database ▸ Tools ▸ Report templates ▸ Manager… ▸ Report template manager ▸ [Edit] ▸ Rename… ▸ Rename report template**

With the menu item **Edit ▸ Rename…** in the window **Report template manager**, the window **Rename report template** opens for renaming the selected report template.

Rename report template 'Name' to

Entry of the new name for the report template.

Input	**50 characters**

Note

The name of the report template must be unambigous in the whole Client/Server system.

4.4.1.1.3 Copy report template

Menu item: **Database ▸ Tools ▸ Report templates ▸ Manager... ▸ Report template manager ▸ [Edit] ▸ Copy**

With the menu item **Edit ▸ Copy** in the window **Report template manager** the selected report templates are copied under the name **Copy of 'Report template name'**.

4.4.1.1.4 Delete report templates

Menu item: **Database ▸ Tools ▸ Report templates ▸ Manager... ▸ Report template manager ▸ [Edit] ▸ Delete...**

With the menu item **Edit ▸ Delete...** in the window **Report template manager** the selected report templates are deleted.

4.4.1.1.5 Export report templates

Dialog window: **Database ▸ Tools ▸ Report templates ▸ Manager... ▸ Report template manager ▸ [Edit] ▸ Export... ▸ Select directory for export**

With the menu item **Edit ▸ Export...** in the window **Report template manager** the selected report templates are each exported in a file with the name **'Name'.mrep**. The window **Select directory for export** opens in which the directory for export must be selected.

4.4.1.1.6 Import report templates

Dialog window: **Database ▸ Tools ▸ Report templates ▸ Manager... ▸ Report template manager ▸ [Edit] ▸ Import... ▸ Select files for import**

With the menu item **Edit ▸ Import...** in the window **Report template manager** the dialog window **Select files for import** opens in which the report templates to be imported must be selected. The report templates are then imported.

4.4.1.2 Create new report template

Menu item: **Database ▸ Tools ▸ Report templates ▸ New**

New form report

With the menu item **Tools ▸ Report templates ▸ New ▸ Form report** the program window **Report template - New form report** opens with an empty report template, which can then be edited.

4.4.1.3 Open report template

Dialog window: **Database ▸ Tools ▸ Report templates ▸ Open... ▸ Open report template**

With the symbol or the menu item **Tools ▸ Report templates ▸ Open...** the window **Open report template** opens in which one of the globally available report templates can be selected and opened.

List of report templates

The list of report templates contains information about all the saved report templates. The table cannot be edited. With a click on the column title (Column **Name**, **Saved**, **Saved by**, **Comment**) the table can be sorted according to the selected column in increasing or decreasing sequence.

Name

Name of report template.

Saved

Date and time when the report template was saved.

Saved by

Short name of the user who saved the report template.

Comment

Comment on the report template.

Open report template

Name

Name of the report template to be opened. If a report template is selected from the table, the name will be entered automatically in this field. It can however also be entered manually.

Input	**50 characters**

[Open]

Opens the program window **Report template**, in which the selected report template is shown and can be edited.

4.4.1.4 Edit report template

4.4.1.4.1 Report template - General

4.4.1.4.1.1 Report template - Overview

Program window: **Database ▸ Report template**

Which determination data and which other items (e.g. text fields, images, graphics elements) are to be produced in a report are defined in report templates. The templates can be created or edited in their own program window and then saved globally under a unique name. They are used for the automatic production of reports in determinations or for manual report production from the database.

There are two basically different types of report template:

- **Form report**
  In the Form report the report section always includes the whole area between the header and the footer. This means that for each determination at least one page will always be produced.
- **Tabular report**
  In the Tabular report the report section can be set with the mouse. For each data set one such report section will be filled with data and placed on the page row by row. In this way tabular reports can be created from several determinations.

4.4.1.4.1.2 Report template - Desktop

Program window: **Database** ▸ **Report template**

Elements

The desktop of the program window **Report template** has the following elements:

- *Menu bar*
- *General toolbar*
- *Module-specific toolbar*
- *Module bar*
- *Main window*

4.4.1.4.1.3 Report template - Menu bar

4.4.1.4.1.3.1 Report template - Main menu

Program window: **Database** ▸ **Report template**

The menu bar in the program window **Report template** has the following main menu items:

- *File*
  Save report template, page setup, page preview, close window.
- *Edit*
  Undo, redo, cut, copy, paste, delete, enter comment.
- *View*
  Update view, page navigation.
- *Insert*
  Insert pages.
- *Tools*
  Options.
- *Help*
  Open Program Help.

4.4.1.4.1.3.2 Report template - Menu File

Program window: **Database** ▸ **Report template**

Save	Save an opened report template *(see Chapter 4.4.1.4.2.11, page 144)*.
Save as	Save an opened report template under a new name *(see Chapter 4.4.1.4.2.11, page 144)*.
Page setup...	Set up the layout for the report template *(see Chapter 4.4.1.4.2.2, page 136)*.
Page preview	Set up the layout for the report template *(see Chapter 4.4.1.4.2.8, page 142)*.
Exit	Close the program window **Report template**.

4.4.1.4.1.3.3 Report template - Menu Edit

Program window: **Database** ▸ **Report template**

Undo:	Undo the last action.
Restore:	Restore the undone action.
Cut	Cut selected items and copy them to the clipboard *(see Chapter 4.4.1.4.2.6, page 141)*.
Copy	Copy the selected items to the clipboard *(see Chapter 4.4.1.4.2.6, page 141)*.
Insert	Insert marked items from the clipboard *(see Chapter 4.4.1.4.2.6, page 141)*.
Delete	Delete the marked items *(see Chapter 4.4.1.4.2.6, page 141)*.
Comment	Enter comments on the report template *(see Chapter 4.4.1.4.2.9, page 143)*.

4.4.1.4.1.3.4 Report template - Menu View

Program window: **Database** ▸ **Report template**

Update	Update the view.
First page	Show the first page of the report template *(see Chapter 4.4.1.4.2.4, page 139)*.
Previous page	Show the previous page of the report template *(see Chapter 4.4.1.4.2.4, page 139)*.
Next page	Show the next page of the report template *(see Chapter 4.4.1.4.2.4, page 139)*.

Last page	Shows the last page of the report template *(see Chapter 4.4.1.4.2.4, page 139)*.

4.4.1.4.1.3.5 Report template - Menu Insert

Program window: **Database** ▸ **Report template**

Page before	Insert a new page in front of the shown page *(see Chapter 4.4.1.4.2.4, page 139)*.
Page after	Inserts a new page after the shown page *(see Chapter 4.4.1.4.2.4, page 139)*.

4.4.1.4.1.3.6 Report template - Menu Tools

Program window: **Database** ▸ **Report template**

Options...	Set options for the report template *(see Chapter 4.4.1.4.2.10, page 143)*.

4.4.1.4.1.3.7 Report template - Menu Help

Program window: **Database** ▸ **Report template**

tiBase Help	Open tiBase help.

4.4.1.4.1.4 Report template - General toolbar

Program window: **Database** ▸ **Report template**

Save	Save an opened report template *(see Chapter 4.4.1.4.2.11, page 144)*.
Page preview	Set up the layout for the report template *(see Chapter 4.4.1.4.2.8, page 142)*.
Print (PDF)...	Show the report template with the data of the selected determination as a PDF-file.
Undo:	Undo the last action.
Restore:	Restore the undone action.
Cut	Cut selected items and copy them to the clipboard *(see Chapter 4.4.1.4.2.6, page 141)*.
Copy	Copy the selected items to the clipboard *(see Chapter 4.4.1.4.2.6, page 141)*.
Insert	Insert marked items from the clipboard *(see Chapter 4.4.1.4.2.6, page 141)*.
Delete	Delete the marked items *(see Chapter 4.4.1.4.2.6, page 141)*.

100 %	Select zoom level *(see Chapter 4.4.1.4.2.7, page 142)*.
Grid	Switch the grid display on and off *(see Chapter 4.4.1.4.2.10, page 143)*.
Snap to grid	Switch snap at grid on and off *(see Chapter 4.4.1.4.2.10, page 143)*.

4.4.1.4.1.5 Report template - Module-specific toolbar

Program window: **Database** ▸ **Report template**

Depending on the module selected in the report template, other symbols and input fields are shown below the general toolbar, with which the properties of these modules can be directly edited *(see Chapter 4.4.1.4.1.6, page 135)*.

4.4.1.4.1.6 Report template - Module bar

Program window: **Database** ▸ **Report template**

Select modules	If this option is enabled then modules in the report template can be selected, reduced/enlarged and moved *(see Chapter 4.4.1.4.2.6, page 141)*.
Text field	If this option is enabled then **text fields** can be inserted in the report template *(see Chapter 4.4.1.4.3.1, page 145)*.
Data field	If this option is enabled then **data fields** can be inserted in the report template *(see Chapter 4.4.1.4.3.2, page 147)*.
Date field	If this option is enabled then **date fields** can be inserted in the report template in which the actual date is entered *(see Chapter 4.4.1.4.3.3, page 149)*.
Time field	If this option is enabled then **time fields** can be inserted in the report template in which the actual time is entered *(see Chapter 4.4.1.4.3.4, page 150)*.
Page number	If this option is enabled then fields can be inserted in the report template in which the **page number** is entered *(see Chapter 4.4.1.4.3.5, page 152)*.
Number of pages	If this option is enabled then fields can be inserted in the report template in which the **number of pages** is entered *(see Chapter 4.4.1.4.3.6, page 154)*.
Fixed report	If this option is enabled then **fixed reports** can be inserted in the report template *(see Chapter 4.4.1.4.3.7, page 155)*.

Group field	If this option is enabled then **group fields** can be inserted in the report template *(see Chapter 4.4.1.4.3.8, page 157)*.
Image	If this option is enabled then **images** can be inserted in the report template *(see Chapter 4.4.1.4.3.9, page 158)*.
Line	If this option is enabled then **lines** can be inserted in the report template *(see Chapter 4.4.1.4.3.10, page 159)*.
Rectangle	If this option is enabled then **rectangles** can be inserted in the report template *(see Chapter 4.4.1.4.3.11, page 160)*.
Curve	If this option is enabled then **curves** can be inserted in the report template *(see Chapter 4.4.1.4.3.12, page 161)*.
Calibration curve	If this option is enabled then **calibration curves** can be inserted in the report template *(see Chapter 4.4.1.4.3.13, page 163)*.

4.4.1.4.2 Report template - Functions

4.4.1.4.2.1 Report template - Function overview

Program window: **Database ▸ Report template**

In the program window **Report template** the following functions can be executed:

- *Page setup*
- *Define sections in main window*
- *Insert report pages*
- *Insert modules*
- *Edit modules*
- *Zooming*
- *Show page preview*
- *Enter comment on report template*
- *Define options for report template*
- *Save report template*

4.4.1.4.2.2 Report template - Page setup

Dialog window: **Report template ▸ File ▸ Page setup… ▸ Page setup**

With the menu item **File ▸ Page setup…** in the window **Report template** the dialog window **Page setup** opens in which the report format settings can be made.

General

only for form report

Settings

Selection	**Apply to current page** | **Apply to all pages**
Default value	**Apply to current page**

Apply to current page
The page settings are only applied for the currently selected report page.

Apply to all pages
The page settings are applied for all report pages.

Page format

Page format

Selection of the page format. The width and height of the paper can be defined with **User-defined**.

Selection	**A4** | **Letter** | **Legal** | **User-defined**
Default value	**A4**

Width

Width of the page format. This parameter can only be edited for **Page format**= **User-defined**

Range	**0.0 ... 499.0 mm**
Default value	**210.0 mm**

Height

Height of the page format. This parameter can only be edited for **Page format**= **User-defined**

Range	**0.0 ... 499.0 mm**
Default value	**297.0 mm**

Orientation

Selection of the page format.

Selection	**Portrait** | **Landscape**
Default value	**Portrait**

Page margins

Top

Upper page margin.

Range	**0.0 ... 499.0 mm**
Default value	**15.0 mm**

Bottom

Lower page margin.

Range	**0.0 ... 499.0 mm**
Default value	**15.0 mm**

Left

Left-hand page margin.

Range	**0.0 ... 499.0 mm**
Default value	**20.0 mm**

Right

Right-hand page margin.

Range	**0.0 ... 499.0 mm**
Default value	**20.0 mm**

Layout

Header

Height of header.

Range	**0.0 ... 499.0 mm**
Default value	**15.0 mm**

Footer

Height of footer.

Range	**0.0 ... 499.0 mm**
Default value	**15.0 mm**

Determination height

Height of the section for a single determination on a tabular report.

only for tabular report

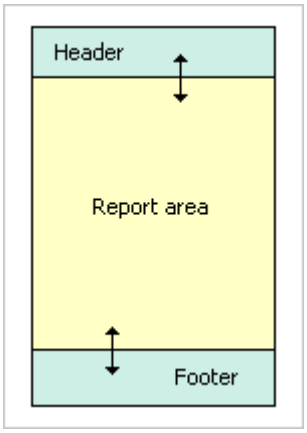
Range	**0.0 ... 499.0 mm**
Default value	**25.0 mm**

4.4.1.4.2.3 Report template - Define sections

Program window: **Database** ▸ **Report template**

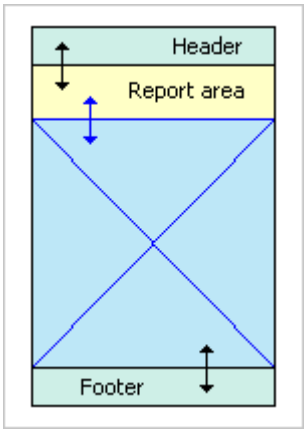
Define sections for form report

The header, footer and report sections can be enlarged and reduced with the left mouse button.



Defining sections for tabular report

The header, footer and report sections can be enlarged and reduced with the left mouse button.



4.4.1.4.2.4 Report template - Insert pages

Menu item: **Report template ▸ Insert ▸ Page before / Page after**

Note

It is not possible to insert pages in templates for tabular reports.

Inserting page before

With the menu item **Insert ▸ Page before** in the program window **Report template** a new empty report report page is inserted before the report page shown.

Insert page after

With the menu item **Insert ▸ Page after** in the program window **Report template** a new empty report report page is inserted after the report page shown.

Navigating

In report templates with several pages the navigation bar can be used to switch to the required page.

Jumps to first page.

Jumps to previous page.

Jumps to next page.

Jumps to last page.

4.4.1.4.2.5 Report template - Insert modules

Program window: **Database ▸ Report template**

In order to insert a module in a report template the corresponding symbol must be selected on the module bar and then placed on the report template by creating a field with the left mouse button. The Properties window of the corresponding module then opens automatically.

Form report

The following modules can be inserted in a form report:

- **Header**
  Text field, *Data field*, *Date field*, *Time field*, *Page number*, *Number of pages*, *Image*, *Line*, *Rectangle*, *Curve*, *Calibration curve*
- **Report section**
  Text field, *Data field*, *Date field*, *Time field*, *Fixed report*, *Group field*, *Image*, *Line*, *Rectangle*, *Curve*, *Calibration curve*
- **Footer**
  Text field, *Data field*, *Date field*, *Time field*, *Page number*, *Number of pages*, *Image*, *Line*, *Rectangle*, *Curve*, *Calibration curve*

Tabular report

The following modules can be inserted in a tabular report:

- **Header**
  Text field, *Date field*, *Time field*, *Page number*, *Number of pages*, *Image*, *Line*, *Rectangle*
- **Report section**
  Text field, *Data field*, *Date field*, *Time field*, *Group field*, *Image*, *Line*, *Rectangle*,

- **Footer**
  Text field, *Date field*, *Time field*, *Page number*, *Number of pages*, *Image*, *Line*, *Rectangle*

4.4.1.4.2.6 Report template - Edit modules

Program window: **Database ▸ Report template**

Enable selection

This symbol in the Module bar must be switched on in order to be able to select modules in a report template for editing.

Select a single module

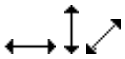
Single modules are selected with a click of the left mouse button. This automatically shows the corresponding properties of the module below the toolbar.

Select several modules

Several modules are selected by drawing a frame around the required modules with the left mouse button.

Moving, reducing, enlarging modules

When this cursor symbol appears then the selected modules can be moved about on the report template with the left mouse button pressed down.



When one of these cursor symbols appears then the selected modules can be reduced and enlarged respectively on the report template with the left mouse button pressed down.

Cutting, copying, pasting, deleting modules

Cut the selected modules and copy them to the clipboard.

Copy the selected modules to the clipboard.

Paste modules from the clipboard.

Delete the selected module.

Edit module properties

Open the properties window for the selected module. Alternatively the properties can also be edited directly below the toolbar.

4.4.1.4.2.7 Report template - Zoom

Program window: **Database** ▸ **Report template**

With this list box on the toolbar the required zoom step for showing the report template can be selected in steps of **25%** from **25%** to **400%**.

4.4.1.4.2.8 Report template - Page preview

Preview window: **Report template** ▸ **File** ▸ **Page preview** ▸ **Report preview**

With the symbol or the menu item **File** ▸ **Page preview** in the program window **Report template** the window **Report preview** opens in which a page preview of the report template is shown with the data of the determinations selected in the determination overview.

Functions

Produces displayed report as PDF-file.

Selects the required zoom step for displaying the report preview, range **25%** to **400%** in steps of **25%**.

Select report page

In report templates with several pages the navigation bar **Page** can be used to switch to the required page.

Jumps to first page.

Jumps to previous page.

Jumps to next page.

Jumps to last page.

Selecting determination

If several determinations have been selected for the report display then the navigation bar **Determination** can be used to switch to the required determination.

Jumps to first determination.

Jumps to previous determination.

Jumps to next determination.

Jumps to last determination.

4.4.1.4.2.9 Report template - Comment

Dialog window: **Report template ▸ Edit ▸ Comment ▸ Comment**

With the symbol or the menu item **Edit ▸ Comment** in the program window **Report template** the window **Comment on report template** opens in which comments on the opened report template can be entered.

Comment

Enter comment on the report template that is shown in the List of report templates.

Input	**1000 characters**

4.4.1.4.2.10 Report template - Options

Dialog window: **Report template ▸ Tools ▸ Options...**

With the menu item **Tools, Options** in the program window **Report template** the window **Options for report templates** opens in which various settings for the report template can be defined.

Unit

Unit

Select the size unit for the report template.

Selection	**mm** | **cm** | **inch**
Default value	**mm**

Grid

X distance

Grid distance in X-direction.

Range	**1.0 ... 100.0 mm**
Default value	**5.0 mm**

Y distance

Grid distance in Y-direction.

Range	**1.0 ... 100.0 mm**
Default value	**5.0 mm**

Display grid

on | off (Default value: **off**)

Enable/Disable the grid display on the report template.

Snap at grid

on | off (Default value: **off**)

Enable/Disable snapping at grid on the report template.

Default font

Font

Select the default font for the report templates.

Selection	**Arial** | **Windows fonts**
Default value	**Arial**

4.4.1.4.2.11 Report template - Save

Dialog window: **Report template ▸ File ▸ Save/Save as ▸ Save report template**

With the symbol or the menu item **File ▸ Save** an existing opened report template will be saved again under its own name without opening the window **Save report template**.

When saving a newly created report template with the menu item **File ▸ Save** or when saving an existing report template with the menu item **File ▸ Save as** the window **Save report template** opens in which a name for the report template can be entered or selected.

List of report templates

The list of report templates contains information about all the saved report templates. The table cannot be edited. With a click on the column title (Column **Name**, **Saved**, **Saved by**, **Comment**) the table can be sorted according to the selected column in increasing or decreasing sequence.

Name

Name of report template.

Saved

Date and time when the report template was saved.

Saved by

Short name of the user who saved the report template.

Comment

Comment on the report template.

Save report template

Name

Name under which the report template is to be saved.

Input	**50 characters**

Note

The name of the report template must be unambigous in the whole Client/Server system.

[Save]

Save the report template under the required name.

4.4.1.4.3 Report template - Modules

4.4.1.4.3.1 Report template - Text field

Program window: **Database** ▸ **Report template**

Text fields are used for showing any texts in the report.

Insert

In order to insert a text field into a report template the corresponding symbol must be selected on the Module bar and placed on the report template by creating a field with the left-hand mouse key.

Properties

X pos.

x-position within the permitted section.

Range	**0.0000 ... (max. page width) mm**

Y pos.

y-position within the permitted section.

Range	**0.0000 ... (max. page height) mm**

Width

Width of image field.

Range	**0.0000 ... (max. page width) mm**

Height

Height of image field.

Range	**0.0000 ... (max. page height) mm**

Selection of the available Windows fonts.

Font size in pt.

Color selection.

Bold.

Italic.

Underlined.

Left-justified.

Centered.

Right-justified.

Switches line break on/off for multi-line text fields.

Fills the field with dots.

Text

Entry of text for the text field.

4.4.1.4.3.2 Report template - Data field

Program window: **Database ▸ Report template**

Data fields are used for showing determination data in a report.

Insert

In order to insert a data field into a report template the corresponding symbol must be selected on the Module bar and placed on the report template by creating a field with the left-hand mouse key.

Properties

X pos.

x-position within the permitted section.

Range	**0.0000 ... (max. page width) mm**

Y pos.

y-position within the permitted section.

Range	**0.0000 ... (max. page height) mm**

Width

Width of data field.

Range	**0.0000 ... (max. page width) mm**

Height

Height of data field.

Range	**0.0000 ... (max. page height) mm**

Selection of the available Windows fonts.

Font size in pt.

Color selection.

Bold.

Italic.

Underlined.

Left-justified.

Centered.

Right-justified.

Switches line break on/off for multi-line data fields.

Fills the field with dots.

Prefix

Text placed in front of the data field contents.

Input	**50 characters**

Data field

Shows path and name of selected data field (the field cannot be edited directly). With ... a window opens for selecting the data field in which all the available fields for the determination overview are shown in a tree structure. With a double-click on the required field the path and name of the data field are entered.

Suffix

Text placed after the data field contents.

Input	**50 characters**

Preview

Shows a formatted example of text.

4.4.1.4.3.3 Report template - Date field

Program window: **Database ▸ Report template**

Date fields are used for showing the current date in a report.

Insert

In order to insert a date field into a report template the corresponding symbol must be selected on the Module bar and placed on the report template by creating a field with the left-hand mouse key.

Properties

X pos.

x-position within the permitted section.

Range	**0.0000 ... (max. page width) mm**

Y pos.

y-position within the permitted section.

Range	**0.0000 ... (max. page height) mm**

Width

Width of date field.

Range	**0.0000 ... (max. page width) mm**

Height

Height of date field.

Range	**0.0000 ... (max. page height) mm**

Selection of the available Windows fonts.

Font size in pt.

Color selection.

Bold.

Italic.

Underlined.

Left-justified.

Centered.

Right-justified.

Fills the field with dots.

Prefix

Text placed in front of the date field contents.

Input	**50 characters**

Suffix

Text placed after the date field contents.

Input	**50 characters**

Sample

Shows the formatted date.

4.4.1.4.3.4 Report template - Time field

Program window: **Database** ▸ **Report template**

Time fields are used for showing the actual time in the report.

Insert

In order to insert a time field in a report template the corresponding symbol must be selected on the Module bar and then placed on the report template by creating a field with the left-hand mouse key.

Properties

X pos.

x-position within the permitted section.

Range	**0.0000 ... (max. page width) mm**

Y pos.

y-position within the permitted section.

Range	**0.0000 ... (max. page height) mm**

Width

Width of time field.

Range	**0.0000 ... (max. page width) mm**

Height

Height of time field.

Range	**0.0000 ... (max. page height) mm**

Selection of the available Windows fonts.

Font size in pt.

Color selection.

Bold.

Italic.

Underlined.

Left-justified.

Centered.

Right-justified.

Fills the field with dots.

Prefix

Text placed in front of the contents of the time field.

Input	**50 characters**

Suffix

Text to be placed after the contents of the time field.

Input	**50 characters**

Preview

Shows the formatted time.

4.4.1.4.3.5 Report template - Page number

Program window: **Database** ▸ **Report template**

The actual page number in the report is produced in a page number field.

Insert

In order to insert page number field into a report template the corresponding symbol must be selected on the Module bar and then placed in the header or footer of the report template by creating a field with the left-hand mouse key.

Properties

X pos.

x-position within the permitted section.

Range	**0.0000 ... (max. page width) mm**

Y pos.

y-position within the permitted section.

Range	**0.0000 ... (max. page height) mm**

Width

Width of the page number field.

Range	**0.0000 ... (max. page width) mm**

Height

Height of the page number field.

Range	**0.0000 ... (max. page height) mm**

Selection of the available Windows fonts.

Font size in pt.

Color selection.

Bold.

Italic.

Underlined.

Left-justified.

Centered.

Right-justified.

Fills the field with dots.

Prefix

Text placed in front of the page number field.

Input	**50 characters**

Suffix

Text placed after the page number field.

Input	**50 characters**

Preview

Shows the formatted page number.

4.4.1.4.3.6 Report template - Number of pages

Program window: **Database ▸ Report template**

This field shows the total number of pages in the report.

Insert

In order to insert a number of pages field into a report template, the corresponding symbol must be selected on the Module bar and then placed in the header or footer of the report template by creating a field with the left-hand mouse key.

Properties

X pos.

x-position within the permitted section.

Range	**0.0000 ... (max. page width) mm**

Y pos.

y-position within the permitted section.

Range	**0.0000 ... (max. page height) mm**

Width

Width of the field.

Range	**0.0000 ... (max. page width) mm**

Height

Height of the field.

Range	**0.0000 ... (max. page height) mm**

Selection of the available Windows fonts.

Font size in pt.

Color selection.

Bold.

Italic.

Underlined.

Left-justified.

Centered.

Right-justified.

Fills the field with dots.

Prefix

Text placed in front of the field contents.

Input	**50 characters**

Suffix

Text placed after the field contents.

Input	**50 characters**

Preview

Shows the formatted number of pages.

4.4.1.4.3.7 Report template - Fixed report

Program window: **Database** ▸ **Report template**

Fixed reports are used for producing predefined part-reports of the determination in the report.

Insert

In order to insert a fixed report in a report template the corresponding symbol must be selected on the Module bar and then placed on the report template by creating a field with the left mouse button.

Properties

X pos.

Shows the predefined x-position for the fixed report.

Y pos.

Y position within the permitted section.

Range	**0.0000 ... (max. page height) mm**

Width

Shows the predefined width of the fixed report.

Height

Height of fixed report.

Range	**0.0000 ... (max. page height) mm**

Fixed report

Selection of a predefined fixed report.

Selection	**Calculations** | **Calibration data** | **Curves** | **Messages** | **List of meas. points** | **Result list** | **Raw data (endpoints)** | **Standard addition** | **Statistics data (brief)** | **Statistics data (full)** | **Signature list Determination** | **Signature list Method** | **Variables** | **Devices used** | **Common variables used** | **Solutions used** | **Sensors used**
Default value	**Calculations**

Command name

Name of the command for which a curve, a calibration curve or a measuring point list is to be produced. With **not defined**, the lists for all curves present in the determination will be produced as default.

This parameter appears only as editable field when **Fixed report** = **Curve, Calibration curve or Measuring point list**.

Input	**50 characters**
Selection	**not defined**
Default value	**not defined**

4.4.1.4.3.8 Report template - Group field

Program window: **Database ▸ Report template**

A group field is for the purpose of grouping together a variety of fields in the report template. All of the fields gathered together in a group field can be moved together as a group. The group field prevents a page break inside the group field.

The group field always extends across the entire width of a page; only the upper edge (Y value) and the height of the field can be configured.

Note

The following fields, which do not permit page break controls, cannot be inserted into a group field.

- Fixed report
- Curve
- Calibration curve

Insert

In order to insert group field into a report template the corresponding symbol must be selected on the Module bar and placed on the report template by creating a field with the left-hand mouse key.

Properties

X pos.

Shows the predefined x-position for the field.

Y pos.

y-position within the permitted section.

Range	**0.0000 ... (max. page height) mm**

Width

Shows the predefined width of the fixed report.

Height

Height of the field

Range	**0.0000 ... (max. page height) mm**

4.4.1.4.3.9 Report template - Image

Program window: **Database** ▸ **Report template**

An image field is used for including any external graphics on the report template. The file formats ***.jpg** and ***.gif** are supported.

Insert

In order to insert an image into a report template the corresponding symbol must be selected on the Module bar and placed on the report template by creating a field with the left-hand mouse key.

Properties

X pos.

x-position within the permitted section.

Range	**0.0000 ... (max. page width) mm**

Y pos.

y-position within the permitted section.

Range	**0.0000 ... (max. page height) mm**

Width

Width of image field.

Range	**0.0000 ... (max. page width) mm**

Height

Height of image field.

Range	**0.0000 ... (max. page height) mm**

Graphics file

Shows path and name of the selected graphics file (the field cannot be edited directly). With ... a window opens for selecting the graphics file. The path and name of the graphics file are then entered.

Size

Entry how the image is to be displayed.

Selection	**original** | **proportional** | **non-proportional**
Default value	**original**

original
Original size.

proportional
Proportional enlargement or diminishment.

non-proportional
Non-proportional enlargement or diminishment.

4.4.1.4.3.10 Report template - Line

Program window: **Database** ▸ **Report template**

Any line can be inserted in the report template.

Insert

In order to insert a line in a report template the corresponding symbol must be selected on the Module bar and then placed on the report template by creating a field with the left-hand mouse key.

Properties

X pos.

x-position within the permitted section.

Range	**0.0000 ... (max. page width) mm**

Y pos.

y-position within the permitted section.

Range	**0.0000 ... (max. page height) mm**

Length

Length of the line.

Range	**0.0 ... (max. page width) mm**

Angle

Angle of the line.

Range	**0 ... 360.000 °**

Thickness

Thickness of the line.

Range	**0.1 ... 10.0 mm**
Default value	**0.5 mm**

Selection of the line color.

Selection of the type of line.

4.4.1.4.3.11 Report template - Rectangle

Program window: **Database ▸ Report template**

Any rectangle can be inserted in the report template.

Insert

In order to insert a rectangle into a report template the corresponding symbol must be selected on the Module bar and placed on the report template by creating a field with the left-hand mouse key.

Properties

X pos.

x-position within the permitted section.

Range	**0.0000 ... (max. page width) mm**

Y pos.

y-position within the permitted section.

Range	**0.0000 ... (max. page height) mm**

Width

Width of the rectangle.

Range	**0.0000 ... (max. page width) mm**

Height

Height of the rectangle.

Range	**0.0000 ... (max. page height) mm**

Thickness

Thickness of the line for the rectangle.

Range	**0.1 ... 10.0 mm**
Default value	**0.5 mm**

Selection of the line color.

Selection of the type of line for the rectangle.

Switches the fill color on and off.

Selection of the fill color.

4.4.1.4.3.12 Report template - Curve field

Program window: **Database** ▸ **Report template**

Curve fields are used for showing determination curves in the report.

Insert

In order to insert a curve in a report template the corresponding symbol must be selected on the Module bar and then placed on the report template by creating a field with the left mouse button.

Properties

Note

The properties are saved individually for each curve field. This means that it is possible, e.g., to show several different curves for the same measuring command beside one another in several curve fields.

X pos.

x-position within the permitted section.

Range	**0.0000 ... (max. page width) mm**

Y pos.

y-position within the permitted section.

Range	**0.0000 ... (max. page height) mm**

Width

Width of curve field.

Range	**0.0000 ... (max. page width) mm**

Height

Height of curve field.

Range	**0.0000 ... (max. page height) mm**

Command type

Shows the command type for which a curve is to be produced.

Selection	**DET** | **MET** | **SET** | **MEAS** | **KFT** | **KFC** | **BRC** | **STAT** | **DOS**
Default value	**DET**

Command name

Name of the command for which the curve is to be produced. With **not defined** all curves present in the determination with the selected **Command type** will be produced as default.

Note

In the command name, the index in the format **.#** must be specified additionally (e.g. **Chloride.1**).

Selection	**not defined** | **50 characters**
Default value	**not defined**

Autoscaling

on | off (Default value: **on**)

If this check box is activated, all axes in the curve window are scaled automatically. In this case the fields **Start value** and **End value** cannot be edited.

Tabs

Additional properties for the curve field can be set on the following 4 tabs:

- *x axis*
  Parameters for the graphical display of the curve on the x axis.
- *y1 axis*
  Parameters for the graphical display of the curve on the y1 axis (left-hand y axis).
- *y2 axis*
  Parameters for the graphical display of the curve on the y2 axis (right-hand y axis).
- *Options*
  Options for graphical display of curves.

4.4.1.4.3.13 Report template - Calibration curve field

Program window: **Database** ▸ **Report template**

Calibration curve fields are used for showing calibration or standard addition curves in the report.

Insert

In order to insert calibration curve field into a report template the corresponding symbol must be selected on the Module bar and placed on the report template by creating a field with the left-hand mouse key.

Properties

X pos.

x-position within the permitted section.

Range	**0.0000 ... (max. page width) mm**

Y pos.

y-position within the permitted section.

Range	**0.0000 ... (max. page height) mm**

Width

Width of calibration curve field.

Range	**0.0000 ... (max. page width) mm**

Height

Height of calibration curve field.

Range	**0.0000 ... (max. page height) mm**

Command name

Entry of the name of the command for which the calibration curve is to be produced. With **not defined** the first calibration curve present in the determination with the selected **Command type** will be produced as default.

Selection	**not defined** | **50 characters**
Default value	**not defined**

4.4.2 Curve overlay templates

4.4.2.1 Manage curve overlay templates

Menu item: **Database ▸ Tools ▸ Templates ▸ Curve overlay templates**

With the menu item **Tools, Templates, Curve overlay templates** the dialog window **Curve overlay templates** opens in which the globally available templates for curve overlay can be managed.

Template table

The table with the defined templates cannot be edited, although it can be sorted according to the selected column in increasing or decreasing sequence by clicking on the column title

Template name

Shows the name of the template.

Command type

Shows the command type for which the template can be used.

Comment

Shows the comments about the template.

Functions

[New]

Generates a new template. The dialog window **Properties - Overlay curves** opens in which the properties for the new template can be defined.

[Properties]

Open the dialog window **Properties - Overlay curves** in which the properties of the template selected in the table can be edited.

[Delete]

Delete the template selected in the table.

[Copy]

Copy the template selected in the table and save it under the name **Copy of...**.

4.4.2.2 Edit curve overlay templates

4.4.2.2.1 Curve overlay - Properties

Dialog window: **Database ▸ Tools ▸ Templates ▸ Curve overlay templates... ▸ Curve overlay templates ▸ [Properties] ▸ Properties - Overlay curves - 'Name'**

Template name

Name for the curve overlay template which is saved in the configuration database per client.

Input	**50 characters**

Command type

Selection of the command type from which curves are to be overlaid.

Selection	**DET pH** | **DET U** | **DET Ipol** | **DET Upol** | **MET pH** | **MET U** | **MET Ipol** | **MET Upol** | **SET pH** | **SET U** | **SET Ipol** | **SET Upol** | **STAT pH** | **STAT U** | **DOS pH** | **DOS U** | **KFT Ipol** | **KFT Upol** | **KFC** | **BRC** | **MEAS pH** | **MEAS U** | **MEAS Ipol** | **MEAS Upol** | **MEAS T** | **MEAS Conc** | **MEAS Cond** | **CAL MEAS pH** | **CAL MEAS Conc** | **CAL Cond**
Default value	**DET pH**

Autoscaling

on | off (Default value: **on**)

If this check box is activated, then the. In this case the fields **Start value** and **End value** cannot be edited.

Tabs

Further properties of a template for the overlaying of curves can be set on the following 4 tabs:

- *x axis*
  Parameters for the graphical display of the overlaid curves on the x axis.
- *y axis*
  Parameters for the graphical display of the overlaid curves on the y axis.
- *Options*
  Options for the graphical display of the overlaid curves.
- *Comment*
  Enter comment on the template.

4.4.2.2.2 Curve overlay - x axis

Dialog window: **Database ▸ Tools ▸ Templates ▸ Curve overlay templates... ▸ Curve overlay templates ▸ [Properties] ▸ Properties - Overlay curves - 'Name'**

Parameters for the graphical display of the overlaid curves on the x axis.

x axis

Size

Selection of the quantity to be shown on the x axis.

Selection	**Command-dependent selection**

Label

Freely definable axis label for the x axis. With **auto** the designation from the field **Size** will be used.

Input	**25 characters**
Default value	**auto**

Scaling

Start value

Initial value for scaling the x axis.

Range	**-1.0 E12 ... 1.0 E12**
Default value	**0.0**

End value

End value for scaling the x axis.

Range	**-1.0 E12 ... 1.0 E12**
Default value	**1000.0**

4.4.2.2.3 Curve overlay - y axis

Dialog window: **Database ▸ Tools ▸ Templates ▸ Curve overlay templates... ▸ Curve overlay templates ▸ [Properties] ▸ Properties - Overlay curves - 'Name'**

Parameters for the graphical display of the overlaid curves on the y axis.

y axis

Size

Selection of the quantiy to be shown on the y axis.

Selection	**Command-dependent selection**

Label

Freely definable axis label for the y axis. With **auto** the designation from the field **Size** will be used.

Input	**25 characters**
Default value	**auto**

Display measuring points

on | off (Default value: **on**)

If this check box is activated then the individual measuring points will be shown on the curve.

Note

With curves, for which the distance between to measuring points is smaller than 5 pixels, the separate measuring points are not displayed anymore, even if a symbol has been selected. In this case, the graphics window can eventually be enlarged in order to display the symbols again.

Scaling

Start value

Initial value for scaling the y-axis.

Range	**-1.0 E12 ... 1.0 E12**
Default value	**0.0**

End value

End value for scaling the y-axis.

Range	**-1.0 E12 ... 1.0 E12**
Default value	**1000.0**

4.4.2.2.4 Curve overlay - Options

Dialog window: **Database ▸ Tools ▸ Templates ▸ Curve overlay templates... ▸ Curve overlay templates ▸ [Properties] ▸ Properties - Overlay curves - 'Name'**

Options for the graphical display of the overlaid curves.

Display grid

on | off (Default value: **off**)

If this check box is actjvated then a grid will be shown against the background.

Grid type

Selection of the type of grid line.

Selection	**Select line type**

Grid color

Selection of the grid line color.

Selection	**Color selection** | **gray**
Default value	**gray**

Show endpoints

on | off (Default value: **off**)

If this check box is activated then the endpoints found will be indicated on the curve by the symbol □ and labeled with **EP#** (potentiometric endpoints), **BP#** (break point) or **FP#** (fixed endpoint).

Automatic EPs

Selection of the color for automatically set endpoints.

Selection	**Color selection** | **black**
Default value	**black**

Manual EPs

Selects the color for manually set endpoints.

Selection	**Color selection** | **pink**
Default value	**pink**

Background

Background color

Selection of the color for the curve background.

Selection	**Color selection** | **white**
Default value	**white**

Legend

Display of the data field, which is shown in the legend to identify the curves.

Open the dialog window **Legend - Field selection** for selecting the data field.

Multiple curves of the same command

Setting, which curves are displayed when the command has been run several times, e.g. because of a **LOOP** command or a multiple call of a **Track**.

Selection	**Show only last curve** | **Show all curves**
Default value	**Show only last curve**

Show only last curve
Only the curve generated during the last run of the command is displayed.

Show all curves
The curves of all runs of the command are displayed.

4.4.2.2.5 Curve overlay - Comment

Dialog window: **Database ▸ Tools ▸ Templates ▸ Curve overlay templates... ▸ Curve overlay templates ▸ [Properties] ▸ Properties - Overlay curves - 'Name'**

Entry of comment on the curve overlay template.

Comment

Comment on control chart.

Input	**1000 characters**

4.4.3 Templates for control chart

4.4.3.1 Managing control chart templates

Menu item: **Database ▸ Tools ▸ Templates ▸ Control chart templates... ▸ Control chart templates**

With the menu item **Tools ▸ Templates ▸ Control chart templates...**, the dialog window **Control chart templates** opens in which the globally available templates for control charts can be managed.

Template table
The table with the defined templates cannot be edited, although it can be sorted according to the selected column in increasing or decreasing sequence by clicking on the column title

Template name

Shows the name of the template.

Comment

Shows the comments about the template.

Functions

[New]

Create new template. The dialog window **Properties - Control chart template** opens in which the properties for the new template can be defined.

[Properties]

The dialog window **Properties - Control chart template** opens, in which the properties of the template selected in the table can be edited.

[Delete]

Delete template.

[Copy]

Copies the template and saves it under the name **Copy of...**.

4.4.3.2 Editing control chart templates

4.4.3.2.1 Control chart template - Properties

Dialog window: **Database ▸ Tools ▸ Templates ▸ Control chart templates... ▸ Control chart templates ▸ [Properties] ▸ Properties - Control chart - 'Name'**

Template name

Name for the control chart template which is saved in the configuration database per client.

Input	**50 characters**

Tabs

The properties of a control chart template can be set on the following 4 tabs:

- *Graphical parameters*
  Parameters for the graphical display of the control chart.
- *Limits*
  Definition of warning and intervention limits for the control chart.
- *Statistics*
  Display of statistics data on the control chart.
- *Comment*
  Enter comment on the template.

4.4.3.2.2 Control chart template - Graphical parameters

Dialog window: **Database ▸ Tools ▸ Templates ▸ Control chart templates... ▸ Control chart templates ▸ [Properties] ▸ Properties - Control chart - 'Name'**

Parameters for the graphical display of the control chart.

y axis

Result

Selection of the result column whose value is to be shown on the y axis.

Selection	**RS01** | **RS02** | **RS03** | **RS04** | **RS05** | **RS06** | **RS07** | **RS08** | **RS09** | **RS10** | **RS11** | **RS12** | **RS13** | **RS14** | **RS15** | **RS16** | **RS17** | **RS18** | **RS19** | **RS20** | **RS21** | **RS22** | **RS23** | **RS24** | **RS25**
Default value	**RS01**

Label

Freely definable axis label for the y axis.

Input	**25 characters**
Default value	**Result**

Background

Background color

Selection of the background color for the control chart.

Selection	**Color selection** | **white**
Default value	**white**

Measured values

Shape

Selection of the symbol for the display of the measured values.

Selection	**Symbol selection** | •
Default value	•

Color

Selection of the color for the measuring point symbol.

Selection	**Color selection** | **blue**
Default value	**blue**

Link measured values

on | off (Default value: **off**)

If this check box is activated, then the measured value points will be joined by a line.

4.4.3.2.3 Control chart template - Limit values

Dialog window: **Database ▸ Tools ▸ Templates ▸ Control chart templates... ▸ Control chart templates ▸ [Properties] ▸ Properties - Control chart - 'Name'**

Definition of warning and intervention limits to be shown on the control chart.

Warning limits

Warning limits are always in **orange** on the control chart.

Lower limit

Lower warning limit.

Input	**10 digits**
Range	**-1.0E8 ... 1.0E8 (max. 10 digits)**

Upper limit

Upper warning limit.

Input	**10 digits**
Range	**-1.0E8 ... 1.0E8 (max. 10 digits)**

Intervention limits

Intervention limits are displayed in **red** on the control chart.

Lower limit

Lower intervention limit.

Input	**10 digits**
Range	**-1.0E8 ... 1.0E8 (max. 10 digits)**

Upper limit

Upper intervention limit.

Input	**10 digits**
Range	**-1.0E8 ... 1.0E8 (max. 10 digits)**

4.4.3.2.4 Control chart template - Statistics

Dialog window: **Database ▸ Tools ▸ Templates ▸ Control chart templates... ▸ Control chart templates ▸ [Properties] ▸ Properties - Control chart - 'Name'**

Definition of the display of statistics data on the control chart.

Show the statistics data

on | off (Default value: **on**)

If this check box is activated, then below the graph the statistics data for **Mean value**, **Standard deviation**, **Number of measuring points** and **Minimum and maximum values** will be shown.

Draw in mean value

on | off (Default value: **on**)

If this check box activated, then the **Mean value** will be shown on the control chart as a continuous line in the color of the measured value.

Draw in standard deviation

on | off (Default value: **on**)

If this check box is activated, then the two values **Mean value + Absolute standard deviation** and **Mean value - Absolute standard deviation** will be shown on the control chart as dotted lines in the color of the measured value.

4.4.3.2.5 Control chart template - Comment

Dialog window: **Database ▸ Tools ▸ Templates ▸ Control chart templates... ▸ Control chart templates ▸ [Properties] ▸ Properties - Control chart - 'Name'**

Entry of comment on the control chart template.

Comment

Comment on control chart.

Input	**1000 characters**

4.4.4 Export templates

4.4.4.1 Export templates manager

Dialog window: **Database ▸ Tools ▸ Templates ▸ Export templates... ▸ Export templates**

With the menu item **Tools ▸ Templates ▸ Export templates**, the dialog window **Export templates** opens in which the globally available templates for manual or automatic export of determination data can be managed.

Template table

The table with the defined templates cannot be edited, although it can be sorted according to the selected column in increasing or decreasing sequence by clicking on the column title

Name

Shows the name of the export template.

File type

Shows the file format of the export template for data export.

Comment

Shows the comment on the export template.

Functions

[New]

Creates a new export template. The dialog window **Export template** opens in which the properties for the new template can be defined.

[Properties]

The dialog window **Export template** opens, in which the properties of the template selected in the table can be edited.

[Delete]

Delete the selected export template.

[Copy]

Copies the selected export template and saves under the name **Copy of…**.

4.4.4.2 Edit export templates

4.4.4.2.1 Export template - Properties

Dialog window: **Database ▸ Tools ▸ Templates ▸ Export templates... ▸ Export templates ▸ [Properties] ▸ Export template 'Name'**

[Properties] is used to open the dialog window **Export template 'Name'** in which the properties of the selected export template can be edited.

Name

Name of export template.

Input	**50 characters**

Comment

Freely definable comment on the export template.

Input	**250 characters**

Target directory

Entry or selection (with ...) of the path for the folder in which the export file is to be saved.

Input	**1000 characters**

File type

Selection of the file format for data export:

Selection	***.tdet (tiBase format)** | ***.csv (comma-separated)** | ***.slk (SLK format)** | ***.xml (XML format)** | ***.csv (measuring point list)**
Default value	***.tdet (tiBase format)**

***.tdet (tiBase format)**
Program-specific data exchange format that can only be imported into other tiBase 1.0 databases.

***.csv (comma-separated)**
Data exchange format with unformatted text that can be imported into other PC programs (e.g. Excel, Access).

***.slk (SLK format)**
Data exchange format with formatted text that can be imported into other PC programs (e.g. Excel).

***.xml (XML format)**
Data exchange format with XML code that can be imported into corresponding PC programs.

***.csv (measuring point list)**
Data exchange format for the measuring point list with unformatted text, which can be imported into corresponding PC programs. The text file contains a document header with date/time of the determination and the determination ID, then the measuring point lists of the separate commands are listed one after the other. The command name is listed first for each measuring point list, followed by a header with the designations and the units of the measured values of the command. This is followed by the list of the measuring points, each measuring point is listed in a separate line and consists of a time indication and all measured values generated by the command.

[Select fields]

Opens the dialog window **Select fields** in which the required fields for export can be selected, arranged in the required sequence and renamed.

Note

Field selection is only possible for the file types ***.csv** and ***.slk**. With ***.tdet** and ***.xml** all fields will always be exported.

[Options]

Opens the dialog window **Options**, in which the separators can be defined.

Note

The options can only be set for the data types ***.csv (comma separated)** and ***.csv (measuring point list)**.

File name

One of the following options can be selected for the definition of the name of the export file:

Selection	**Determination ID** | **Sample identification** | **Request on each export** | **Fixed file name (append data)**
Default value	**Determination ID**

Determination ID
If this option is selected then the name of the export file will be formed from the unambiguous **Determination ID**, the **Computer name**, the date stamp **-YYYYMMDD-HHMMSS** and the suffix for the format.

Sample identification
If this option is selected then the name of the export file will be formed from the selected sample identification **ID1 or ID2**, the **Computer name**, the date stamp **-YYYYMMDD-HHMMSS** and the suffix for the format. If the generated name already exists in the folder then a version number will additionally be appended to the date.

Request on each export
If this option is selected then the name of the export file will be requested at each export. In addition to the entered name the **Computer name** and the date stamp **-YYYYMMDD-HHMMSS** will be added automatically.

Fixed file name (append data)
If this option is selected then the name of the export file will be formed from the name entered here and the suffix for the format. If the file is already present in the folder then the data will be appended to this file.

Note

The option **Fixed file name** can only be selected for the file type ***.csv (comma separated)** or ***.slk (SLK format)**.

4.4.4.2.2 Export template - Select fields

Dialog window: **Database ▸ Tools ▸ Templates ▸ Export templates... ▸ Export templates ▸ [Properties] ▸ Export templates ▸ [Select fields] ▸ Select fields**

With **[Select fields]** in the Properties window for export templates the dialog window **Select fields** opens in which the fields for data export for the file types ***.csv** and ***.slk** can be selected.

Available fields

Shows all the fields that can be exported.

Selected fields

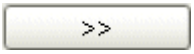
Shows all the fields that will be exported.

Default name

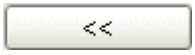
Non-editable name of the field to be exported.

Displayed name

Field name that can be edited by the user for the exported field. The **Default name** is entered as default. If the field name is deleted then the **Default name** appears again.



Add selected field.



Remove selected field.

Modifies the sequence of the exported fields by moving the selected field up.

Modifies the sequence of the exported fields by moving the selected field down.

4.4.4.2.3 Export template - Options for CSV format

Dialog window: **Database ▸ Tools ▸ Templates ▸ Export templates... ▸ Export templates ▸ [Properties] ▸ Export template ▸ [Options] ▸ Options for CSV format**

With **[Options]** in the Properties window for export templates the dialog window **Options for CSV format** opens in which the separators can be defined.

Field separator

Selection of the field separator.

Selection	**; | , | Tab**
Default value	**;**

Record separator

Selection of the data set separator (**CR** = Carriage return, **LF** = Line feed).

Selection	**CR/LF | CR | LF**
Default value	**CR/LF**

Header

on | off (Default value: **on**)

If this check box is activated, the column headers are exported at the beginning of the export file.

4.4.4.2.4 Export template - Options for measurement point list

Dialog window: **Database ▸ Tools ▸ Templates ▸ Export templates... ▸ Export templates ▸ [Properties] ▸ Export template ▸ [Options] ▸ Options for measuring point list**

With **[Options]** in the Properties window for export templates the dialog window **Options for measurement point list** opens in which the separators can be defined.

Field separator

Selection of the field separator.

Selection	**; | , | Tab**
Default value	**;**

4.4.4.2.5 Export template - Request at file export

Dialog window: **Database ▸ Tools ▸ Templates ▸ Export templates... ▸ Export templates ▸ [Properties] ▸ Export template**

If in the properties of the export template under **File name** the option **Request on each export** has been selected *(see Chapter 4.4.4.2.1, page 174)*, then before the export of a determination the dialog **File export** is displayed.

Target directory

Shows the target directory for the export file, which has been defined in the properties of the export templates *(see Chapter 4.4.4.2.1, page 174)* used.

File name

Name under which the export file is to be saved în the **Target directory**. During creating the file the user name as well as the current time stamp are automatically attached to the name entered.

[OK]

The export of the corresponding determination is carried out to the indicated file.

[Cancel]

The export of *the corresponding determination* is canceled. If several determinations have been selected to be exported, then the dialog **File export** will be displayed for the next determination.

[Cancel all]

The export of *all selected determinations* is canceled.

4.4.4.3 XML export

XML export

General

An XML export file with all determination data can be created when an XML report template is used at the export of the determinations.

Structure

An XML export file is constructed as follows:

```
<?xml version="1.0" encod-
ing="ISO-8859-1" ?>
```

–<DeterminationReport>	Determination report
<xmlCreator val=""/>	Program name
<xmlCreatorVersion val=""/>	Program version
<xmlCreatorBuildNo val=""/>	Build number
<subtype val=""/>	
+ <Determination>	Determination data
+ <Method>	Method data
+ <Sample>	Sample data
+ <Results dynamic="">	Results overview
+ <ResultaSingle="">	Single results
+ <Command Data dynamic="">	Command variables
+ <Comvars dynamic="">	Common variables
+ <usedDevices dynamic="">	Device data
+ <usedSensors dynamic="">	Sensor data
+ <Statistics>	Statistical data
–<System>	System data
<userName val="" />	User name (abbreviation)
<userNameFull val="" />	User name (full name)
<clientName val="" />	Client name
<progVersion val="" />	Program version - Build number
<licenseRoot val="" />	License code
</Sytem>	
</DeterminationReport>	

Note

dynamic= means that the following nodes can appear more than once.

The actual data is situated between **" "**.

4.4.4.3.1 XML export - Determination data

XML export

– <Determination>	Determination data
– <Identification>	Information about the identification of the determination.
<statisticLinkID val=""/>	Statistics ID: Unambiguous and unmistakable identification for the statistically linked determinations.
<determinationID val=""/>	Determination ID: Unambiguous and unmistakable identification for the determination.
<serverName val=""/>	Name of the server to which the client was connected when the determination was recorded.
<clientName val=""/>	Name of the client with which the determination was recorded.
<detCounter val=""/>	**Sample number** which was entered in the run window.
<startCounter val=""/>	Start counter
</Identification>	
– <Acquisition>	Information about recording the determination.
<determinationStart val=""/>	Date and time at start of determination.
<determinationDuration val=""/>	Duration of the determination from its start to its end or termination in s.
<determinationEndState val=""/>	Determination run (way in which the determination was ended): **regular without errors** The determination was finished automatically after the method was processed normally and without any errors. **manual stop** The determination has been ended with the **[Stop]** fixed key. **error** The determination has been ended because an error occured.
<userName val=""/>	Short name of user logged in at start of determination.
<userNameFull val=""/>	Full name of user logged in at start of determination.
<determinationNote val=""/>	**Remark** on determination

<progVersion val=""/>	Program version and build number of the program at recording the determination.
<licenseRoot val=""/>	License start number of the program at recording the determination.
</Acquisition>	
– <Version>	Information about the determination version.
<signOffState val=""/>	Signature status **no** Determination not signed. **Level 1** Determination signed on level 1. **Level 2** Determination signed on level 2.
<version val=""/>	Version of the determination.
<status val="original"/>	Determination status: **original** Determination data unaltered. **modified** Determination data modified.
<recalcDate val=""/>	Date and time when the reprocessed determination version was saved.
<recalcedBy val=""/>	Short name of user logged in when determination was reprocessed.
<recalcedByuserFull val=""/>	Full name of user logged in when determination was reprocessed.
<recalcReason val=""/>	Reason for the determination modification.
<changeComment val=""/>	User comment on the determination modification.
</Version>	
– <Miscellaneous>	Different determination data.
<deterComment val=""/>	Comment, which has been entered on the determination.
– <runMessages dynamic="">	Messages
– <data>	Message
<subtype val=""/>	

<msgSource val=""/>	Message source:
	Shows from where the message comes:
	Program
	Message that cannot be assigned to a particular command.
	Track 'Track name' - Command 'Command name'
	Message produced by a command during the run.
<msgText val=""/>	Message text.
<msgTime val=""/>	Time at which the message was created in the run (date, time, UTC in the format **JJJJ-MM-TT hh:mm:ss UTC....**
<msgTitle val=""/>	Message title and number.
</data>	
</runMessages>	
– <DetermVars dynamic="">	Determination variables
– <data>	Determination variable
<vt val=""/>	Variable type:
	TX = Text
	NR = Number
	DT = Date/Time
	NA = Unknown
<vn val=""/>	*Variable identification*
<vr val=""/>	Variable value.
</data>	
</DetermVars>	
– <SystemVars dynamic="">	System variables
– <data>	System variable
<vt val=""/>	Variable type:
	TX = Text
	NR = Number
	DT = Date/Time
	NA = Unknown
<vn val=""/>	*Variable identification*
<vr val=""/>	Variable value.

</data>	
</SystemVars>	
</Miscellaneous>	
– <signOff dynamic="">	Signatures
– <data>	Signature
<subtype val=""/>	
– <signature>	
<vr val=""/>	Shows at which level the determination has been signed (**Level 1** or **Level 2**).
</signature>	
– <signDate>...</signDate>	Date and time at which the determination was signed.
– <userName>...</userName>	Short name of the user who signed the determination.
– <userNameFull>...</userNameFull>	Full name of the user who signed the determination.
– <reason>...</reason>	Reason for signature.
– <comment>...</comment>	Comment on the signature.
</data>	
</signOff>	
</Determination>	

4.4.4.3.2 XML export - Method data

XML export

– <Method>	Method data
– <Identification>	Information about the identification of the method.
<methodName val=""/>	Name of the method.
<methodID val=""/>>	Method ID: Unambiguous and unmistakable identification for the method.
<methodComment val=""/>	Method comment (**Command comment** on **START** command).

</Identification>	
– <Version>	Information about method version.
<signOffState val=""/>	Signature status **no** Method not signed. **Level 1** Method signed at level 1. **Level 2** Method signed at level 2.
<version val=""/>	Version of the method.
<status val="original"/>	Method status: **new** The method has been newly created and not yet saved. **modified** The method has been reprocessed but not saved. **saved** The method has been saved. **reviewed** The method has been signed at stage 1. **released** The method has been signed at stage 2.
<savingTime val=""/>	Date and time when the modified method version was saved.
<savingUser val=""/>	Short name of user logged in when modified method was saved.
<savingUserFull val=""/>	Full name of user logged in when modified method was saved.
<changeReason val=""/>	Reason for the method modification.
<changeComment val=""/>	User comment on the method modification.
</Version>	
– <signOff dynamic="">	Signatures
– <data>	Signature
<subtype val=""/>	

– <signature>	
<vr val=""/>	Shows at which level the method has been signed (**Level 1** or **Level 2**).
<</signature>>	
– <signDate>...</signDate>	Date and time at which the method was signed.
– <userName>...</userName>	Short name of the user who signed the method.
– <userNameFull>...</userNameFull>	Full name of the user who signed the method.
– <reason>...</reason>	Reason for signature.
– <comment>...</comment>	Comment on the signature.
</data>	
</signOff>	
</Method>	

4.4.4.3.3 XML export - Sample data

XML export

– <Sample>	Sample data
– <Smpl.Data>	Sample data
– <SmplSize>	Sample size.
– <data>...</data>	*see above*
</SmplSize>	
– <SmplUnit>	Sample size unit.
– <data>...</data>	*see above*
</SmplUnit>	
</SmplData>	
– <Identification>	Sample identifications.
– <ID__01>	Sample identification ID1.
– <data>...</data>	*see above*
</ID__01>	
– <ID__02>	*see above*
</Identification>	
</Sample>	

4.4.4.3.4 XML export - Results overview

XML export

– <Results dynamic="">	Results overview
– <data>	
<subtype val="" />	
<vr val="" />	Result value with the number of decimal places defined in the CALC command.
<vf val="" />	Result value with full precision.
<vs val=""/>	Result status: **OK** = The value is ok and has not been monitored. **OKL** = The value is ok and has been monitored. **LE** = The value exceeded the limit and has not been monitored. **LEL** = The value exceeded the limit and has been monitored.. **NV** = The value is invalid and has not been monitored. **NVL** = The value is invalid and has been monitored.
<vt val=""/>	Result type: **TX** = Text **NR** = Number **DT** = Date/Time **NA** = Unknown
<vn val=""/>	Result name. Name of the CALC command the result has been generated with.
<un val=""/>	Unit of the result.
<fo val=""/>	Formula used for the calculation of the result.
– <fv dynamic="">	Variables used for the calculation of the result.
– <data>	
<vr val="" />	Variable value.
<vs val=""/>	Variable status *(see above)*.
<vt val=""/>	Variable type *(see above)*.
<vn val=""/>	Variable name.

</data>	
</fv>	
– <sme>	Mean value of the result.
– <data>	
<vr val="" />	Mean value with the number of decimal places defined in the CALC command.
<vf val="" />	Mean value with full precision.
<vs val=""/>	Variable status *(see above)*.
</data>	
<sme>	
– <abs>	Absolute standard deviation of the result.
– <data>	
<vr val="" />	Absolute standard deviation with the number of decimal places defined in the CALC command.
<vf val="" />	Absolute standard deviation with full precision.
<vs val=""/>	Variable status *(see above)*.
</data>	
<abs>	
– <rel>	Relative standard deviation of the result.
– <data>	
<vr val="" />	Absolute standard deviation with the number of decimal places defined in the CALC command.
<vf val="" />	Relative standard deviation with full precision.
<vs val=""/>	Variable status *(see above)*.
</data>	

<rel>

-<max>

– <data>

<vr val="" />

<vf val="" />

<vs val=""/>

</data>

</max>

-<min>

– <data>

<vr val="" />

<vf val="" />

<vs val=""/>

</data>

</min>

<n val="" />	Number of the result among the statistically evaluated results.
<nmax val="" />	Maximum number of statistically evaluated results.

</data>

</Results>

4.4.4.3.5 XML export - Single results

XML export

– <ResultsSingle>	Single results
– <RS01>	1. single result

– <data>

<vr val="" />	Result value with the number of decimal places defined in the CALC command.
<vf val="" />	Result value with full precision.

<vs val=""/>	Result status: **OK** = The value is ok and has not been monitored. **OKL** = The value is ok and has been monitored. **LE** = The value exceeded the limit and has not been monitored. **LEL** = The value exceeded the limit and has been monitored.. **NV** = The value is invalid and has not been monitored. **NVL** = The value is invalid and has been monitored.
<vt val=""/>	Result type: **TX** = Text **NR** = Number **DT** = Date/Time **NA** = Unknown
<vn val=""/>	Result name.
<un val=""/>	Unit of the result.
<fo val=""/>	Formula used for the calculation of the result.
– <fv dynamic="">	Variables used for the calculation of the result.
– <data>	
<vr val="" />	
<vs val="" />	
<vt val=""/>	
<vn val=""/>	
</data>	
– <sme>	Mean value of the result.
– <data>	
<vr val="" />	Mean value with the number of decimal places defined in the CALC command.
<vf val="" />	Mean value with full precision.
<vs val=""/>	Variable status *(see above)*.
</data>	

<sme>	
– <abs>	Absolute standard deviation of the result.
– <data>	
<vr val="" />	Absolute standard deviation with the number of decimal places defined in the CALC command.
<vf val="" />	Absolute standard deviation with full precision.
<vs val=""/>	Variable status *(see above)*.
</data>	
<abs>	
– <rel>	Relative standard deviation of the result.
– <data>	
<vr val="" />	Absolute standard deviation with the number of decimal places defined in the CALC command.
<vf val="" />	Relative standard deviation with full precision.
<vs val=""/>	Variable status *(see above)*.
</data>	
<rel>	
– <max>	
– <data>	
<vr val="" />	
<vf val="" />	
<vs val=""/>	
</data>	
</max>	
– <min>	
– <data>	
<vr val="" />	
<vf val="" />	
</data>	
</min>	
<n val="" />	Number of the result among the statistically evaluated results.
<nmax val="" />	Maximum number of statistically evaluated results.

</data>	
<RS01>	
<RS02> … <RS25>	Further single results *(see above)*
</ResultsSingle>	

4.4.4.3.6 XML export - Command data

XML export

– <CommandData dynamic="">	Command data
– <Command>	Data on command
<subtype val="" />	
<data val="" />	Command name.Index
<commandType val="" />	Command type.
– <CommandVars dynamic="">	Command variables
– <data>	
<vt val="" />	Variable type: **TX** = Text **NR** = Number **DT** = Date/Time **NA** = Unknown
<vn val="" />	Variable identification
<vr val="" />	Variable value.
</data>	
</CommandVars>	
– <Sensor>	Data on sensor.
<subtype val="" />	Type of sensor: **XML_SENSOR_OTHER** = Other sensor **XML_SENSOR_PH** = pH sensor **XML_SENSOR_ION** = ISE sensor **XML_SENSOR_METAL** = Metal sensor **XML_SENSOR_TEMP** = Temperature sensor **XML_SENSOR_COND** = Conductivity sensor
– <sensorData>	Data on sensor.
<sensorName val="" />	Sensor name.

<sensorType val="" />	Sensor type.
<sensorOrderNo val="" />	Order number of sensor.
<sensorSerialNo val="" />	Serial number of sensor.
<sensorInitDate val="" />	Date on which the sensor was used for the first time.
<sensorCellConst val="" />	Cell constant of the conductivity sensor.
<sensorSlope val="" />	Slope of the sensor.
<sensorPh0 val="" />	Electrode zero point of the pH sensor.
<sensorIonVa val="" />	Ion (valency) of the ISE sensor.
<sensorE0 val="" />	Electrode zero point of the sensor.
<sensorC val="" />	Blank value of the ISE sensor.
<sensorCalTemp val="" />	Calibration temperature.
<sensorCalDate val="" />	Calibration date.
<sensorCalMethod val="" />	Calibration method.
</sensorData>	
</Sensor>	
</Device>	
– <CalibData>	Calibration data
<sensorName val="" />	Sensor name.
<sensorType val="" />	Sensor type.
<sensorSlope val="" />	Slope of the sensor.
<sensorPh0 val="" />	Electrode zero point of the pH sensor.
<sensorIonVa val="" />	Ion (valency) of the ISE sensor.
<sensorE0 val="" />	Electrode zero point of the sensor.
<sensorC val="" />	Blank value of the ISE sensor.
<resultUnit val="" />	Concentration unit of calibration.
<variance val="" />	Variance of calibration.
<sensorCalTemp val="" />	Calibration temperature.
<sensorCalTempType val="" />	Calibration mode.
<sensorCalDate val="" />	Calibration date.
<sensorCalMethod val="" />	Calibration method.
– <CalibrationTable>	Calibration solutions.
– <header>	Column headers.

<<RowDesc val="" />	Column header for buffers/standards.
<NominalVal val="" />	Column header for nominal value.
<MeasVal val="" />	Column header for measured value.
<CalTemp val="" />	Column header for calibration temperature.
<CalDur val="" />	Column header for duration of measurement.
<header>	
– <body dynamic="">	
– <data>	
<RowDesc> ... </RowDesc>	Buffer/Standard.
<NominalVal> ... </NominalVal>	Nominal value.
<MeasVal> ... </MeasVal>	Measured value.
<CalTemp> ... </CalTemp>	Calibration temperature.
<CalDur> ... </CalDur>	Duration of measurement in s.
</data>	
</body>	
</CalibrationTable>	
</CalibData>	
– <StdAddData>	Standard addition data
<slope val="" />	Calculated slope of the standard addition curve.
<e0 val="" />	Calculated axis intercept of the standard addition curve.
<ion val="" />	Ion (Valency).
<conc val="" />	Calculated valency.
<concUnit val="" />	Concentration unit.
<variance val="" />	Variance.
– <StdAddTable>	Standard addition solutions.
– <header>	Column headers.
<RowDesc val="" />	Column header for measuring solution.
<dV val="" />	Column header for addition volume.
<MeasVal val="" />	Column header for measured value.
<dU val="" />	Column header for measured value differential.
<Dur val="" />	Column header for duration of measurement.
</header>	

– <body dynamic="">	
– <data>	
<RowDesc> ... </RowDesc>	Measuring solution.
<dV> ... </dV>	Addition volume in mL.
<MeasVal> ... </MeasVal>	Measured value in mV.
<dU> ... </dU>	Measured value differential in mV.
<Dur> ... </Dur>	Duration of measurement in s.
</data>	
</body>	
</StdAddTable>	
</StdAddData>	
– <MeasPoints content-Type="table">	Measuring points
– <tableHeader>	Column headers.
– <th>	
<vr val="" />	Column header.
</th>	
</tableHeader>	
– <tableBody>	Measuring points.
– <td>	
<vr val="" />	
<vf val="" />	
</td>	
</tableBody>	
</MeasPoints>	
– <EndPoints dynamic="">	Endpoints
– <data>	
<ept val="" />	Designation of the endpoint.
<epvx val="12.1835" />	X value of the endpoint.
<epux val="mL" />	Unit of the x value of the endpoint.
<epvy val="518.5" />	Y value of the endpoint.
<epuy val="mV" />	Unit of the y value of the endpoint.

</data>

</EndPoints>

</Command>

</CommandData>

4.4.4.3.7 XML export - Common Variables

XML export

– <Comvars dynamic>	Common variables
– <data>	
<subtype val="" />	
<vr val="" />	Variable value.
<vs val="" />	Variable status: **OK** = The value is ok and has not been monitored. **OKL** = The value is ok and has been monitored. **LE** = The value exceeded the limit and has not been monitored. **LEL** = The value exceeded the limit and has been monitored.. **NV** = The value is invalid and has not been monitored. **NVL** = The value is invalid and has been monitored.
<vt val="" />	Variable type: **TX** = Text **NR** = Number **DT** = Date/Time **NA** = Unknown
<vn val="" />	Variable name.
<un val="" />	Unit of the variable.
<am val="" />	Assignment method.
<at val="" />	Assignment date.
</data>	
</Comvars dynamic>	

4.4.4.3.8 XML export - Device data

XML export

– <usedDevices dynamic="">	Device data
– <Device>	Data on device.
<subtype val="" />	
– <deviceType>	Device type.
<vn val="" />	Parameter name.
<vr val="" />	Parameter value.
</deviceType>	
– <deviceName> ... </device-Name>	Device name.
– <instrNo> ... </instrNo>	Device serial number.
– <deviceProgNo> ... </device-ProgNo>	Device program number.
– <rackName> ... </rackName>	Rack name.
– <rackCode> ... </rackCode>	Rack code.
– <towerNoOne> ... </tower-NoOne>	Tower number.
– <swingHeadOneType> ... </ swingHeadOneType>	Type of Swing Head on tower 1.
– <swingHeadOneSerial> ... </ swingHeadOneSerial>	Serial number of the Swing Head on tower 1.
– <towerNoTwo> ... </tower-NoTwo>	Tower number.
– <swingHeadTwoType> ... </ swingHeadTwoType>	Type of Swing Head on tower 2.
– <swingHeadTwoSerial> ... </ swingHeadTwoSerial>	Serial number of the Swing Head on tower 2.
– <devicePorts dynamic="">	Data on the peripheral devices connected.
– <Port>	
<subtype val="" />	Type of the device connected to the port: **XML_PORT_DEVICE_DOS** = Dosing/Exchange unit **XML_PORT_DEVICE_REMOTE** = Remote Box **XML_PORT_DEVICE_STIR** = Stirrer

– <dosPortName> ... </dosPortName>	Number of the MSB connector the dosing device was connected to.
– <dosType> ... </dosType>	Dosing device type.
– <dosSerial> ... </dosSerial>	Dosing device serial number.
– <exchDosUnit>	Data on exchange/dosing unit.
– <exdosTitle> ... </exdosTitle>	Designation of the exchange/dosing unit.
– <exdosName> ... </exdosName>	Name of the exchange/dosing unit.
– <exdosType> ... </exdosType>	Type of exchange/dosing unit.
– <exdosOrder> ... </exdosOrder>	Order number of exchange/dosing unit.
– <exdosSerial> ... </exdosSerial>	Serial number of exchange/dosing unit.
– <cylVol> ... </cylVol>	Cylinder volume of exchange/dosing unit.
– <cylSerial> ... </cylSerial>	Cylinder serial number of exchange/dosing unit.
– <Solution>	Data on solution.
– <solTitle> ... </solTitle>	Solution title.
– <solutionName> ... </solutionName>	Solution name.
– <conc> ... </conc>	Concentration.
– <concUnit> ... </concUnit>	Concentration unit.
– <solCreationTime> ... </solCreationTime>	Production date.
– <titer> ... </titer>	Titer value.
– <titerUnit> ... </titerUnit>	Titer unit.
– <titerCreationTime> ... </titerCreationTime>	Date and time of the last titer determination.
– <titerMethod> ... </titerMethod>	Name of the method with which the last titer determination was carried out.
</Solution>	
</exchDosUnit>	
– <stirrerPortName> ... </stirrerPortName>	Number of the MSB connector the stirrer was connected to.
– <stirrerType> ... </stirrerType>	Type of stirrer.
– <serialStirrer> ... </serialStirrer>	Serial number.

– <remotePortName> ... </remotePortName>	Number of the MSB connector the Remote Box was connected to.
– <remoteType> ... </remoteType>	Type of Remote Box.
</Port>	
</devicePorts>	
</Device>	
</usedDevices>	

4.4.4.3.9 XML export - Sensor data

XML export

– <usedSensors dynamic="">	Sensor data
– <Sensor>	Data on sensor.
<subtype val="" />	Type of sensor: **XML_SENSOR_OTHER** = Other sensor **XML_SENSOR_PH** = pH sensor **XML_SENSOR_ION** = ISE sensor **XML_SENSOR_METAL** = Metal sensor **XML_SENSOR_TEMP** = Temperature sensor **XML_SENSOR_COND** = Conductivity sensor
– <sensorData>	Data on sensor.
<sensorName val="" />	Sensor name.
<sensorType val="" />	Sensor type.
<sensorOrderNo val="" />	Order number of sensor.
<sensorSerialNo val="" />	Serial number of sensor.
<sensorInitDate val="" />	Date on which the sensor was used for the first time.
<sensorSlope val="" />	Slope of the sensor.
<sensorPh0 val="" />	Electrode zero point of the pH sensor.
<sensorIonVa val="" />	Ion (valency) of the ISE sensor.
<sensorE0 val="" />	Electrode zero point of the sensor.
<sensorC val="" />	Blank value of the ISE sensor.
<sensorCalTemp val="" />	Calibration temperature.
<sensorCalDate val="" />	Calibration date.

<sensorCalMethod val="" />	Calibration method.
<sensorCalUser val="" />	User
<sensorCalMeasInput val="" />	Measuring input at calibration.
</sensorData>	
</Sensor>	
</usedSensors>	

4.4.4.3.10 XML export - Statistical data

XML export

– <Statistics>	Statistical data
<subtype val="" />	
<nMax val="" />	Maximum number of statistically evaluated results.
– <StatisticsShort dynamic="">	Statistical data on the separate results.
– <data>	
<subtype val="" />	
– <resName>	
<vr val="" />	Result name.
<vf val="" />	
</resName>	
– <n> ... </n>	Number of the result among the statistically evaluated results.
– <sme> ... </sme>	Mean value of the result.
– <un> ... </un>	Result unit.
– <abs> ... </abs>	Absolute standard deviation of the result.
– <rel> ... </rel> ...	Relative standard deviation of the result.
– <min> ... </min> ...	Minimum value of the result.
– <max> ... </max> ...	Maximum value of the result.
</data>	
</StatisticsShort>	
– <StatisticsOverview content-Type="table">	Statistical data overview
<subtype val="" />	
– <tableHeader>	Column headers (dynamic).

– <th>	
<vr val="" />	Column header.
</th>	
</tableHeader>	
– <tableBody>	Table content (dynamic).
– <td>	
<vr val="" />	Field content.
</td>	
</tableBody>	
</StatisticsOverview>	
</Statistics>	

4.5 Determination overview

4.5.1 Determination overview - General

4.5.1.1 Determination overview - Overview

Subwindow: **Database** ▸ **Determination overview**

General

The subwindow **Determination overview** shows selected data for the determinations contained in the open database in tabular form. It is always shown in the program part **Database**, i.e. it cannot be removed from the Database view. The subwindow can be enlarged and reduced as required; it can also be maximized.

Elements

The subwindow **Determination overview** includes the following tools:

- *Determination table*
- *Filter selection*
- *Navigation bar*

4.5.1.2 Determination overview - Table

Subwindow: **Database** ▸ **Determination overview**

Data display

In the determination table the information about the determinations defined under **Column display** is shown. If the contents of a field is larger than the column width then the whole contents will be shown as a **tooltip** if the mouse cursor is kept on the field.

If the value of a result is monitored and lies within the limits defined, then it will be shown in **green**. If it is outside these limits then the value will be shown in **red**.

Note

Lines that contain red entries will also show the line number with a red background.

Updating

As long as the program part **Database** remains open modifications in the determination table, caused by running determinations or by other users (addition, editing or deletion of data sets), will not be shown automatically. The table must either be updated with **View ▸ Update** or newly sorted or filtered. Each switch from a different program part to the program part **Database** automatically updates the determination table.

Table view

With a click on the column title the table can be sorted according to the selected column in either increasing or decreasing sequence. The table view can be adapted with the left-hand mouse button as follows:

- **Drag the border between column titles**:
  Sets the column width.
- **Double-click on the border between column titles**
  Sets the optimal column width.
- **Drag the column title**
  Moves the column to the required location.

Data record selection and table navigation

The determinations selected in the table are shown in **turquoise**, the focused determination whose data is shown in the other Subwindows is indicated by an arrow in front of the line number. There are various opportunities for data set selection in the table.

In the determination table it is not possible to show more than 200 determinations at once. If more than 200 data sets are present in the database then the Navigation bar must be used to switch to further sets of determinations.

4.5.1.3 Determination overview - Column display

Dialog window: **Database ▸ View ▸ Properties ▸ Column display… ▸ Column display**

View ▸ Properties ▸ Column display… opens the dialog window **Column display**. Here you can define the columns that are to be shown in the determination table.

Available columns

Shows all the fields that can be shown as columns in the determination table.

Displayed columns

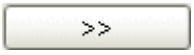
Shows all the fields that will be shown as columns in the determination table.

Default name

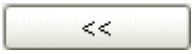
Non-editable name of the field that is displayed as column.

Displayed name

Editable name (by double click) of the column displayed in the determination overview.



Adds the selected column to the table.



Removes the selected column from the table.

Move selected column upwards.

Move selected column downwards.

4.5.1.4 Determination overview - Filter selection

Subwindow: **Database** ▸ **Determination overview**

Filter

Selection of the filter according to which the Determination table is to be filtered:

Selection	**All determinations** | **All statistics records** | **Quick filter** | **Temporary filter** | **Filter name**
Default value	**All determinations**

All determinations
The table is shown unfiltered.

All statistics records
The table is filtered so that all determinations are shown that are linked statistically with the selected determination.

Quick filter
The table is filtered according to the last defined **Quick filter**

Temporary filter
The table is filtered according to the last defined, not saved **Special filter**.

Filter name
The table is filtered according to the selected and saved **Special filter**.

Statistics

With the statistics filter selected here the determinations shown in the Determination table can be additionally filtered according to the statistical data generated by the method independently of any other filters that may have been used.

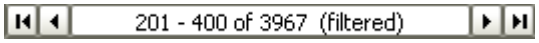
Selection	**All** | **Last**

All
All determinations are shown for all statistics series.

Last
Only the last determination is shown for all statistics series.

4.5.1.5 Determination overview - Navigation bar

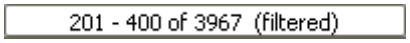
Subwindow: **Database** ▸ **Determination overview**



The navigation bar shown below the determination table is used for navigation in extensive tables in which all the determinations cannot be shown at once. It contains the following tools:

Jump to the first set of determinations in the table.

Jump back to the previous set of determinations in the table.



Display the selected set **#### - ####** of determinations in the table. If the table has not been filtered then the total number of all determinations will be shown. If the table has been filtered the total number of filtered determinations is shown with **(filtered)**.

Jump further to the next set of determination in the table.

Jump to the last set of determinations in the table.

4.5.1.6 Determination overview - Table navigation

Subwindow: **Database ▸ Determination overview**

In the determination table navigation can be carried out with the mouse and the vertical and horizontal scroll bars. The following possibilities are also provided by the keyboard:

[↑]

Moves the line cursor up by one field.

[↓]

Moves the line cursor down by one field.

[Ctrl] [End]

Jumps to the last determination in the current set.

[Ctrl] [Home]

Jumps to the first determination in the current set.

[Page Up]

Pages backward within the current set.

[Page Down]

Pages forward within the current set.

[Alt] [End]

Jumps to last determination (of all).

[Alt] [Home]

Jumps to first determination (of all).

[Alt] [↑]

Jumps to first data set of previous set.

[Alt] [↓]

Jumps to first data set of next set.

In the determination table it is not possible to show more than 200 determinations at once. If more than 200 determinations are present in the database then the Navigation bar must be used to switch to further sets of determinations.

4.5.1.7 Determination overview - Data record selection

Subwindow: **Database ▸ Determination overview**

The determinations selected in the table are shown in **turquoise**, the focused determination whose data is shown in the other Subwindows is indicated by an arrow in front of the line number. When a database is opened the first determination is always selected and focused.

The following possibilities are available for the selection of determinations in the determination table:

- **Single determinations**
  Single determinations are selected by clicking on them with the mouse within the line (including line number). This determination, whose data is shown in the other opened subwindows, is now focused and receives an arrow in front of the line number.
- **Several determinations in sequence**
  In order to select several determinations in sequence the required range can be selected with the left mouse button pressed down. It is also possible to select a range with a click on the first determination and **[Shift] & click** on the last determination. The last determination to be selected receives the focus.
- **Several determinations not in sequence**
  In order to select several determinations not in sequence the individual determinations must be selected with the **Ctrl key** and the left mouse button. The last determination to be selected receives the focus.
- **All determinations**
  With **[Ctrl] [A]** or by clicking on the uppermost left-hand table field all the filtered determinations within the current set of determinations are selected. The focus is retained.

4.5.1.8 Determination overview - Functions

Subwindow: **Database ▸ Determination overview**

With the determinations selected in the Determination table the following functions can be carried out:

Editing determinations

- *Update determination overview*
- *Enter determination comment*
- *Sign determinations*
- *Export determinations*
- *Import determinations*
- *Send determinations to*
- *Reprocess determinations*
- *Delete determinations*

Search and filter determinations

- *Search determinations*
- *Filter determinations*

Other functions

- *Determination overview - Print*
- *Print report*
- *Determinations - Display history*
- *Determinations - Control chart*
- *Determinations - Overlay curves*
- *Print overlaid curves*
- *Print control chart*

4.5.2 Determination overview - Functions

4.5.2.1 Update determination overview

Menu item: **Database ▸ View ▸ Update**

The menu item **View ▸ Update** or the symbol is used to update the determination table.

Note

The determination table is updated automatically when the database is opened and when a change is made from another program part to the program part **Database**, but afterwards only when the table is newly sorted or filtered.

4.5.2.2 Determination comment

Dialog window: **Database ▸ Determinations ▸ Comment… ▸ Determination comment**

With the menu item **Determinations ▸ Comment…** or the symbol the dialog window **Determination comment** opens in which new comments on the selected determination can be entered an existing comment can be edited.

Comments entered this way appear automatically as a Tooltip text when the cursor line is kept on the number field of a line in the determination table for more than 1 second. In addition, it is also displayed in the subwindow **Information**.

4.5.2.3 Searching for determinations

Dialog window: **Database** ▸ **Determinations** ▸ **Search...** ▸ **Search - Database**

With the menu item **Determinations** ▸ **Search...** or the symbol the dialog window **Search - Database** for searching for determinations is opened.

Search in

Selection of the data field to be searched in.

Selection	**All fields** | **'Field name'**

All fields
It is being searched in all fields of the database.

'Field name'
It is being searched in the selected field only. Available are always the 10 most recently selected fields.

[More...]

Open the dialog window **Search – Field selection**. All fields are listed in tree-form. A field can be included in the search by marking it and then closing the dialog with **[OK]**.

Details

Depending on the data field, under Details further selection fields are dynamically created in order to be able to select the required property.

Search options

Type

Selection of the format type for the fields for which several types are possible. With fields with a fixed type only this one will be displayed.

Selection	**Text** | **Date** | **Number**
Default value	**Text**

Operator

Selection of the relational operator for the search condition.

for fields of the type = Text

Selection	**=** | **<>** | **empty** | **not empty**
Default value	**=**

for fields of the type = Date

Selection	**=** | **<>** | **<** | **<=** | **>** | **>=** | **empty** | **not empty** | **invalid** | **outside limits** | **Today**
Default value	**=**

invalid
It is being searched for values with the entry **invalid** .

outside limits
It is being searched for values which exceed the limit values defined for the selected fields (values presented in red).

Today
It is being searched for the current date. In addition, a range of days can also be defined in the field **Search word** in which, starting from the current date, the search is to be carried out.

for fields of the type = Number	
Selection	**=** | **<>** | **<** | **<=** | **>** | **>=** | **empty** | **not empty** | **invalid** | **outside limits**
Default value	**=**

invalid
It is being searched for values with the entry **invalid** .

outside limits
It is being searched for values which exceed the limit values defined for the selected fields (values presented in red).

Search word

Enter a search word for searching the selected data field. For fields of the **Type** = **Date** the date can be selected by pressing on **[...]** in the dialog window **Select date**.

for fields of the type = Text	
Input	**256 characters** Definition of a text expression as search word. The last 10 search words are saved and can be selected. The following wildcards can be used in the search word:
Selection	**^?** | **^#** | **^$** | **^***

^?
Wildcard for any character.

^#
Wildcard for any number.

^$
Wildcard for any letter.

^*
Wildcard for any character string.

for fields of the type = Date

Input	**all possible date values** Definition of a date as search word. The last 10 search words are saved and can be selected.

for fields of the type = Date and Operator = Today

Range	**-9999 ... 9999**
Default value	**0** Definition of a numerical value as range of days in which, starting from the current date, the search is to be carried out. The last 10 search words are saved and can be selected.

for fields of the type = Number

Input	**all possible numerical values** Definition of a numerical value as search word. The last 10 search words are saved and can be selected.

Search direction

Selection of the search direction.

Selection	**Total** | **Downward** | **Upward**
Default value	**Total**

Total
It is being searched down to the end of the database and then again from above down to the selected data record.

Downward
It is being searched to the end of the databse.

Upward
It is being searched to the beginning of the databse.

Match case

on | off (Default value: **off**)

If this option is enabled, then differentiation will be made between upper and lower case letters during searches in **Text**-type fields.

Search for whole word only

on | off (Default value: **off**)

If this option is enabled, then the field contents must be identical with the search word during searches in **Text**-type fields (no part-search).

[Search next]

Search next occurrence of the search word.

4.5.2.4 Filter determinations

4.5.2.4.1 Filter determinations - Overview

Subwindow: **Database ▸ Determination overview**

The following possibilities exist for filtering determinations in the Determination table:

- *Search filter selection in the filter list*
- *Quick filter*
- *Special filter*
- *Last filter*
- *Remove filter*

4.5.2.4.2 Determinations - Last filter

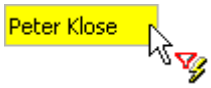
Menu item: **Database ▸ Determinations ▸ Filter ▸ Last filter**

With the menu item **Determinations ▸ Filter ▸ Last filter** or the symbol the most recently used filter will be activated.

4.5.2.4.3 Determinations - Quick filter

Menu item: **Database ▸ Determinations ▸ Filter ▸ Quick filter**

With the menu item **Determinations ▸ Filter ▸ Quick filter** or the symbol a quick filtering for the content of the selected tabular field can be carried out. After this function has been selected the field in the determination table in which the cursor is located will be shown with a colored background during navigation. At the same time the following special filter symbol appears:



By double-clicking with the left mouse button set the content of the selected field as filter criterion and apply directly on the table.

Note

The quick filter can be used again within the filtered table, so that the number of entries can be limited step by step.

4.5.2.4.4 Determinations - Special filter

Dialog window: **Database ▸ Determinations ▸ Filter ▸ Special filter… ▸ Special filter - Database "Database name"**

With the menu item **Determinations ▸ Filter ▸ Special filter...** or the symbol the dialog window **Special filter - Database** opens for defining user-specific filters.

Filter

Selects the filter to be loaded for processing.

Selection	**'Filter name'** | **New filter**
Default value	**New filter**

'Filter name'
The saved filter is loaded.

New filter
An empty table with the name **New filter** is loaded.

[Save filter]

Opens the dialog window **Save filter** in which the filter criteria entered in the table can be saved as a special filter under the required name.

[Delete filter]

Deletes the special filter that is currently loaded.

Table view

The overview table shows all the defined filter criteria and cannot be directly edited. The filter conditions will be numbered automatically in sequence. The table view can be adapted with the left-hand mouse button as follows:

- **Drag the border between column titles**:
  Sets the column width
- **Double-click on the border between column titles**
  Sets the optimal column width

If the contents of a field is larger than the column width then the whole contents will be shown as a **tooltip** if the mouse cursor is kept on the field.

For the meaning of the columns, *see Edit filter criterion*.

Functions

The menu **[Edit]** beneath the filter table contains the following menu items:

Edit line	Open the dialog window **Edit filter criterion** in which the filter criterion of the line selected in the table can be edited.
Insert new line	Inserts a new empty line above the line selected in the table. The dialog window **Edit filter criterion** opens automatically.
Cut lines	Transfer selected lines to clipboard.
Copy lines	Copies selected lines to the clipboard.
Paste lines	Insert lines from the clipboard above the selected line.
Delete lines	Deletes the selected lines.

[Apply filter]

Applies filter criteria to Determination table.

4.5.2.4.5 Determinations - All statistics data sets

Menu item: **Database ▸ Determination ▸ Filter ▸ All statistics sets**

With the menu item **Determinations ▸ Filter ▸ All statistics data sets** or the symbol all determinations statistically linked with the selected determination are displayed.

4.5.2.4.6 Determinations - Delete filter

Menu item: **Database ▸ Determinations ▸ Filter ▸ Remove filter**

With the menu item **Determinations ▸ Filter ▸ Delete filter** or the symbol the most recently used filter will be deleted and all determinations will be displayed.

4.5.2.4.7 Determinations - Save filter

Dialog window: **Database ▸ Determinations ▸ Filter ▸ Special filter... ▸ Special filter - Database "Database name" ▸ [Save filter] ▸ Save filter**

With the button **[Save filter]** in the dialog window **Special filter - Database "Database name"** the dialog window **Save filter** opens for saving a special filter.

All the saved special filters are shown in the upper field.

Filter name

Name under which the special filter is to be saved.

Input	**50 characters**

[Save]

Saves filter under given name.

Note

The filters are saved globally in the configuration database and are therefore available for all clients.

4.5.2.4.8 Determinations - Edit filter condition

Dialog window: **Database ▸ Determinations ▸ Filter ▸ Special filter ▸ Special filter - Database "Database name" ▸ [Edit] ▸ Edit line ▸ Edit filter criterion 'Filter name'**

With the command **Edit ▸ Edit line** in the dialog window **Special filter - Database "Database name"** the dialog window **Edit filter criterion #** opens, in which the filter criterion selected in the filter table can be edited.

Link

Selection of the logic operator with the previous filter criterion.

Selection	**AND** | **OR**
Default value	**AND**

AND
Logical "AND" link

OR
Logical "OR" link

Field

Selection of a data field for which a condition is to be formulated.

Selection	**'Field name'** Filtering is carried out only for the selected field. The 10 most recently selected fields are always available for selection.

[Other...]

Open the dialog window **Filter - Field selection**. Herein all fields that can be used for filtering are listed in tree-form. A field can be adopted by marking it and then closing the dialog with **[OK]**.

Details

Depending on the data field, further selection fields are created under Details in order to be able to select the desired property.

Condition

Type

Selection of the type of format for fields in which several types are possible. For fields with a fixed type only this type will be shown.

Selection	**Text** | **Number** | **Date**
Default value	**Text**

Operator

Selection of the comparison operator for the filter criterion.

Only for fields of the type = text

Selection	**=** | **<>**
Default value	**=**

Only for fields of the type = date

Selection	**=** | **<>** | **<** | **<=** | **>** | **>=** | **Today**
Default value	**=**

Today
A search is made for the current date. In addition, a range of days can also be defined the field **Comparison value** in which, starting from the current date, the filtering is to be carried out.

For fields of the type = number	
Selection	**=** | **<>** | **<** | **<=** | **>** | **>=** | **empty** | **not empty** | **invalid** | **out of limits**
Default value	**=**

invalid
Filtering is carried out for values with the entry **invalid**.

out of limits
Values that are out of the defined limits for the selected fields will be filtered for (values shown in red).

Comparative value

Selection or entry of the comparative value for the filter criterion. For fields where **Type** = **Date**, the date can be selected by pressing **[...]** in the dialog window **Select date**.

Only for fields of the type = text	
Input	**256 characters** Definition of a text expression as comparison value. ***** can be used as a wildcard for any sequence of characters if the option **Use asterisk (*) as wildcard** is enabled.

Only for fields of the type = date	
Input	**all possible date values** Definition of a date as comparison value.

For fields of the type = date and operator = today.	
Range	**-9999 ... 9999**
Default value	**0** Definition of a numerical value as a range in days in which, starting from the current date, the filtering is to be carried out.

For fields of the type = number	
Input	**all possible numerical values** Definition of a numerical value as comparison value.

Match case

on | off (Default value: **off**)

If this check box is activated then upper/lower case will be differentiated when filtering **Text**-type fields.

Use asterisk (*) as wildcard

on | off (Default value: **off**)

If this check box is activated then when filtering **Text**-type fields the asterisk ***** can be used as a wildcard for any character strings.

4.5.2.5 Sign determinations

4.5.2.5.1 Rules for electronic signatures

Program part: **Database**

In tiBase determinations can be **electronically signed** at two levels. The following rules apply for this:

- **Signature levels**
  Signature levels for determinations can be signed at two levels (Signature Level 1 and Signature Level 2) by entering the user name and password.
- **Multiple signing**
  Determinations can be signed several times at each level.
- **Sign at Level 1**
  If Level 2 has been signed then no more signatures are possible at Level 1.
- **Sign at Level 2**
  Level 2 can only be signed if signatures already exist at Level 1.
- **Different users**
  The same user may only sign on either Level 1 or Level 2.
- **Reason and comment**
  Each signature must be accompanied by a reason selected from predefined default reasons. A further comment can also be entered.
- **Saved data**
  The signature date, user name, full name, reason and comments are saved for each signature.
- **Deleting signatures 1**
  Signatures at Level 1 are automatically deleted again when compiling a new version.
- **Deleting signatures 2**
  Signatures at Level 2 can only be deleted by users who have the appropriate rights.
- **Signature options**
  The options for electronic signatures are set in the **Signatures** tab in the **Security settings** dialog window.

4.5.2.5.2 Signature Level 1

Dialog window:Database ▸ Determinations ▸ Sign ▸ Signature 1... ▸ Signature Level 1

Determinations can be signed at Level 1 in the **Signature Level 1** window.

Note

Determinations which have been signed at Level 1 can be changed and deleted. If the altered method or determination is saved as a new version then all existing signatures will be deleted automatically, i.e. the method or determination must be signed again.

Info

Information display for signing and deleting signatures. The following messages are possible:

Selection	**Signature possible | Signature 1 not possible (signature 2 exists) | Signature not possible (accessed by other client) | Signature not possible for multiple determinations**

Signature possible
The selected determination can be signed.

Signature 1 not possible (signature 2 exists)
The selected determination can no longer be signed at Level 1 as it has already been signed at Level 2.

Signature not possible (accessed by other client)
The selected determination cannot be signed as it is already marked to be signed on a different client.

Signature not possible for multiple determinations
Several determinations have been selected, they may however only be signed individually.

User

Entry of the user name (short name).

Input	**24 characters**

Password

Password entry.

Input	**24 characters**

Reason

Selection from the **Default reasons** defined in the **Security Settings** dialog window for the category **Signature level 1**.

Selection	**Selection from the Default reasons**

Comment

Entry of comment on the signature.

Input	**1000 characters**

[Sign]

Sign determination. The window remains open.

> **Note**
>
> Determinations can only be signed at level 1 if the user belongs to a user group with the corresponding authorization .

4.5.2.5.3 Signature Level 2

Dialog window:Database ▸ Determinations ▸ Sign ▸ Signature 2... ▸ Signature Level 2

Determinations can be signed at Level 2 in the **Signature Level 2** window.

> **Note**
>
> Determinations that can be signed at level 2 are **blocked**, i.e. they can neither be modified nor deleted. In order to be able to edit such determinations again the signatures at level 2 must first be deleted .

Info

Information for signing and deleting signatures is displayed in this box. The following messages are possible:

Selection	**Signature possible | Signature 2 not possible (signature 1 missing) | Signature not possible (accessed by other client)**

Signature possible
The selected determination can be signed.

Signature 2 not possible (signature 1 missing)
The selected determination cannot be signed at Level 2 as it has not yet been signed at Level 1.

Signature not possible (accessed by other client)
The selected determination cannot be signed as it is already marked to be signed on a different client.

User

Entry of the user name (short name).

Input	**24 characters**

Password

Password entry.

Input	**24 characters**

Reason

Selection from the **Default reasons** defined in the **Security Settings** dialog window for the category **Signature level 2**.

Selection	**Selection from the Default reasons**

Comment

Entry of comment on the signature.

Input	**1000 characters**

[Sign]

Sign determination. The window remains open.

Note

Determinations can only be signed at level 2 if the user belongs to a user group with the corresponding authorization .

4.5.2.5.4 Display determination signatures

Dialog window: **Database ▸ Determinations ▸ Sign ▸ Display signatures... ▸ Signatures - Determination 'Determination ID'**

With the menu item **Determinations ▸ Sign ▸ Show signatures...** the window **Signatures - Determination 'Determination ID'** opens with a table in which information about all the signatures for the selected determination is shown.

Signature

Shows at which level the determination has been signed (**Level 1** or **Level 2**).

Signature date

Date and time at which the determination was signed.

User

Short name of the user who signed the determination.

Full name

Full name of the user who signed the determination.

Reason

Reason for signature.

Signature comment

Comment on the signature.

4.5.2.5.5 Delete Signature Level 2

Dialog window:Database ▸ Determinations ▸ Sign ▸ Delete signatures 2... ▸ Delete Signatures Level 2

The **Delete Level 2 signatures** window allows you to delete all signatures on Level 2 for the selected methods or determination.

User

Entry of the user name (short name).

Input	**24 characters**

Password

Password entry.

Input	**24 characters**

Reason

Selection from the **Default reasons** defined in the **Security Settings** dialog window for the category **Signature level 2**.

Selection	**Selection from the Default reasons**

Comment

Entry of comment on the signature.

Input	**1000 characters**

[Delete]

Delete Signatures 2.

Note

Signatures 2 can only be deleted if the user belongs to a user group with the corresponding authorization.

4.5.2.6 Determinations - Reprocessing

4.5.2.6.1 Reprocessing - General

Dialog window: **Reprocess**

Reprocessing determinations

The determinations saved in the database can be reprocessed at any time. The variables, methods, statistics and curve evaluation can be modified and the results recalculated. The reprocessed determination can then be saved in the database as a new version.

Note

Determinations that have a signature at level 2 cannot be reprocessed.

Opening the reprocessing window

The reprocessing of determinations that have been selected in the sub-window **Determination overview** takes place in the independent dialog window **Reprocessing** which is opened with **Determinations ▸ Reprocess...** or the symbol . When the window is opened the first of the selected determinations is always shown as standard.

Closing the reprocessing window

The dialog window **Reprocessing** is closed with **[OK], [Cancel]** or with the Windows button for closing.

Note

The reprocessing window cannot be closed while recalculations are still running.

4.5.2.6.2 Reprocessing - Window

Dialog window: **Reprocess**

Subwindow

The dialog window **Reprocessing** contains the following two subwindows that can be enlarged and reduced by dragging the separating bar between them:

- *Modifications*
  Modification of variables, method, statistics, curve evaluation
- *Result view*
  Shows current results

Functions

If determinations have been edited in the subwindow **Modifications** then the following functions can be triggered:

[Recalc]

Recalculate selected determination(s) with the modifications on variables, method, statistics or curve evaluation made in the subwindow **Modifications**.

A progress bar appears during the recalculating, the recalculating can be canceled with ☒ next to the bar. The results of this recalculation are entered automatically in the subwindow **Result view**.

This button is inactive until modifications have actually been made. After the recalculation further data can be modified and then recalculation triggered again.

[Reset]

Reset all modifications made and unsaved during reprocessing to the original data and results.

This button is inactive for as long as no modifications have been made or when the recalculation has not yet been triggered.

[OK]

Close the dialog window **Reprocessing**. Each determination that has been modified by reprocessing will be saved as a new version with a version number increased by **+1**.

This button is inactive when the recalculation has not yet been triggered and if not all the selected determinations could have been recalculated.

[Cancel] or ☒

Close the dialog window **Reprocessing**. The result of the reprocessing made since the last saving will not be saved.

Note

If the option **Comment on modification of determinations** is enabled under **Configuration ▸ Tools ▸ Security settings ▸ Audit Trail/ Modifications**, the dialog window **Modification comment determination** is displayed before saving.

4.5.2.6.3 Reprocessing rules

Dialog window: **Reprocess**

The following rule applies for recalculating the selected and modified determinations:

With measuring commands (DET, MET, SET, KFT, BRC, MEAS, CAL MEAS) only the evaluations with existing data will be recalculated. All other parameters will be ignored.

4.5.2.6.4 Modifications

4.5.2.6.4.1 Modifications - Overview

Subwindow: **Database ▸ Determination overview ▸ Determinations ▸ Reprocess... ▸ Reprocessing ▸ Modifications**

In the subwindow **Modifications** of the dialog window **Reprocessing** modifications can be made on the following 4 tabs:

- *Variables*
  Modification of the variables used in the selected determination.
- *Calculations*
  Selected determinations will be recalculated.
- *Statistics*
  Modification of statistics data.
  The tab **Statistics** will only be shown when the last determination (and only this one) is selected from a set of determinations which, because of the statistics defined in the method, belong together.
- *Curve evaluation*
  Manual modification of the curve evaluation.
  The tab **Curve evaluation** is only shown when a single determination is selected that contains curves that can be evaluated.

4.5.2.6.4.2 Modifications - Variables

Tab: **Database ▸ Determination overview ▸ Determinations ▸ Reprocess... ▸ Reprocessing ▸ Modifications ▸ Variables**

On the tab **Variables** the variables used in the determination can be modified.

Variable table

The variable table shows those variables used that are present in all the selected determinations and cannot be edited directly. With a click on the column title (columns **Variable**, **Value**) the table can be sorted according to the selected column in increasing or decreasing order.

Variable

Shows the name of the variable. Only the those variables are displayed which are available in all the selected determinations and can be edited. These

include: the method variables **FCT** (factor) and **DIV** (divisor), the sample data variables **C00** (sample size), **ID1** and **ID2** (sample identification, the common variables CV01 to CV25 as well as the following command variables:

- **1M.TITER**
  Titer value of the solution used in the command.
- **1M.CONC**
  Concentration of the solution used in the command.

Value

Display of the variable value. If a fixed value is defined for a variable, the value will be presented *in italics*.

[Modify]

Open the dialog window **Modify variable** to modify the value of an existing variable.

Note

If a variable is modified, then with **[Recalculate]** all the selected determinations will be recalculated with the new value. If one variable is not modified then when several determinations are recalculated the original value of the variable will be used (i.e. variables with the same name but different values will not be overwritten until they are deliberately modified).

4.5.2.6.4.3 Modifications - Calculations

Tab: **Database** ▸ **Determinations** ▸ **Reprocess...** ▸ **Reprocessing** ▸ **Modifications** ▸ **Calculations**

Table with calculations

The table contains details on the calculations.

Result variable

Variable, which is automically generated by the program during the evaluation or by the results defined by the user.

Result name

Name of the result. This name will be shown in the result view as well as in the report. The result name can be used in further calculations as variable **RS.Result name.VAL**.

Formula

Calculation formula which can be generated after pressing in the formula editor.

Formula lines can be deleted according to normal rules (**[Delete]**), copied (**[Ctrl+C]**), cut (**[Ctrl+x]**) and be pasted (**[Ctrl+v]**)

Input	**1000 characters**
Default value	**empty**

Unit

Unit of the result for the output (text only). The unit can be used in further calculations as variable **'RS.Result name.UNI'**.

Input	**16 characters**
Default value	**empty**

Decimal places

Number of decimal places for the output of the calculated result. This parameter is ignored for results of the type **text** or **date/time**.

Range	**0 ... 5**
Default value	**2**

Assignment

Assign a result to a defined result column **RS01 ... RS25**. This order specifies in which of the 25 available result columns in the determination overview the result is being added to. Per calculation the result columns **RS01 ... RS25** are available. Only the columns still free are made available. With **none** the result will not be assigned to any column.

Range	**RS01 ... RS25**
Default value	**none**

Statistics

on | off (Default value: **on**)

If this check box is activated, the mean value and the absolute and relative standard deviation are calculated for the result. This field is only active when the statistics is enabled in the method of the imported determination (i.e. the statistics can only then be disabled and enabled again, if it has already been enabled in the method).

Description

Freely selectable description of the result.

Input	**1000 characters**
Default value	**empty**

Functions

[New]

Opens the dialog window **Result 'Resultname' - RS#** *(see Chapter 4.5.2.6.4.7, page 238)*. A maximum of 81 result calculations can be generated. Afterwards, the button **[New]** will be disabled.

[Delete]

Deletes the selected calculations from the table.

[Properties]

Opens the dialog window **Result 'Result name' - RS#** in order to edit calculations selected in the table *(see Chapter 4.5.2.6.4.7, page 238)*.

4.5.2.6.4.4 Modifications - Statistics

Tab: **Database ▸ Determination overview ▸ Determinations ▸ Reprocess... ▸ Reprocessing ▸ Modifications ▸ Statistics**

On the tab **Statistics** the single results for the statistics calculation can subsequently be switched on and off.

Results with statistics

Result name

Selection of the statistically evaluated result by using the result name for which the single results of all determinations are shown.

Selection	**Result name**

Table of single results

For the result selected above the following data for the individual determinations is shown:

Determination start

Shows the date and time at which the determination was started.

Version

Shows the version number of the determination.

Sample size

Shows the sample size.

Result value

Shows the result value. The statistics data (mean value, standard deviations, etc.) for the selected determination are listed in the subwindow **Result view** *(see Chapter 4.5.2.6.5, page 240)*.

[Determination on/off]

All single results of the selected determination for statistical calculations can be switched off or on. If the determination is switched off then an asterisk (*****) appears behind all result values in the table and the line is shown as inactive (gray); if it is switched on again then the asterisks will disappear. However, updating the statistics data always only takes place with **[Recalculate]**.

[Result on/off]

Switch the selected single result for the statistical calculations off or on. If the result is switched off, an asterisk (*****) appears behind the result value, is it switched on again, the asterisk disappears. However, updating the statistics data always only takes place with **[Recalculate]**.

Note

If the results of a determination are switched off, the statistics for these results will be switched off when this determination is recalculated, i.e. no data for the mean value and standard deviations will be shown. However, the determinations remain statistically linked to each other so that the results can also be switched on again.

4.5.2.6.4.5 Modify variable

Dialog window: **Reprocessing ▸ Modifications ▸ Variables ▸ [Modify] ▸ Modifiy variable**

In the dialog window **Modify variable** the value of the selected variable is modified.

Variable

Shows the name of the variable.

Value

Value of the variables. With variables of the type **Date** the date must be entered in the dialog window *(see Chapter 2.5.1, page 67)*.

Range	**-1.0 E+99 ... 1.0 E+99** (for **Type** = **Number**)
Input	**100 characters** (for **Type** = **Text**)
Selection	**'Date'** (for **Type** = **Date/Time**)

4.5.2.6.4.6 Curve evaluation

4.5.2.6.4.6.1 Modifications - Curve evaluation

Tab: **Database** ▸ **Determinations** ▸ **Reprocess...** ▸ **Reprocessing** ▸ **Modifications** ▸ **Curve evaluation**

On the tab **Curve evaluation** the curves that can be manually evaluated are displayed.

Command name

Selection of the measuring command (**command name.index - command type**) for which the curve is to be shown for reprocessing.

Selection	**Command name**

[Edit]

The dialog window **Curve evaluation** opens for manually reprocessing the curve evaluation.

4.5.2.6.4.6.2 Edit curve evaluation

Dialog window: **Database** ▸ **Determinations** ▸ **Reprocess...** ▸ **Reprocessing** ▸ **Modifications** ▸ **Curve evaluation** ▸ **[Edit]** ▸ **Curve evaluation**

In the dialog window **Curve evaluation** the evaluation of the selected curve can be reprocessed manually.

In the curve those EP's are indicated, which have values for the dimensions of the x and y axis, i.e. manually set EP's are possibly not indicated.

Command name

Selection	**Command name**

Command name
Selection of the measuring command for which the curve is to be shown for reprocessing.

Toolbar

The toolbar above the curve contains symbols for the following functions for re-evaluation of the curve:

Set EP manually

By moving the mouse a point on the curve is selected. The current X and Y values are shown graphically with a blue cross hair and numerically above the curve in the fields **X** and **Y**. A new endpoint can be set by clicking with the left mouse button. This function is activated as standard when the window **Curve evaluation** is opened.

Set EP with intersection lines

By moving the mouse a point on the curve is selected to which the tangent is automatically applied. The first tangent is set by clicking the left mouse button. The mouse is then used to select a second point to which the second tangent is to be applied. The second tangent is set with clicking the left mouse button and at the same time a new endpoint is set at the point where both tangents intersect.

Set EP with parallel tangents

By moving the mouse a point on the curve is selected to which the tangent is automatically applied. At the same time a tangent parallel to it is applied to the other leg of the curve. The two tangents are set with a click of the left mouse button and at the same time a new endpoint is set at the intersection of the middle line of the two tangents with the curve.

Note

If new endpoints are set manually or by intersection or tangent evaluation or if existing endpoints are deleted then the endpoints will always be renumbered from left to right. During recalculation the automatic evaluations will generally no longer be used for curves, i.e. the endpoints defined in the curve evaluation are retained.

Set horizontal auxiliary lines

By moving the mouse a horizontal auxiliary line is drawn in the graph; this can be set by clicking the left mouse button. This function is only active when under **Curve evaluation ▸ Properties ▸ Properties - Curves 1 ▸ Options** the option **Show evaluation lines** is enabled.

Set vertical auxiliary lines

By moving the mouse a vertical auxiliary line is drawn in the graph; this can be set by clicking the left mouse button. This function is only active when under **Curve evaluation ▸ Properties ▸ Properties - Curves 1 ▸ Options** the option **Show evaluation lines** is enabled.

Delete endpoints and auxiliary lines

With the context-sensitive menu item **Delete EP#** the selected endpoint can be deleted, with **Delete ###.###** the selected auxiliary line can be deleted.

Zooming

By drawing out a rectangle with the left mouse button the selected area can be zoomed.

Reset zoom

The graph will be reset to zoom level 100%.

Copy to clipboard

The content of the curve window is copied to the clipboard.

Define properties for the graph display

The dialog window **Properties - Curves #** is opened for graph display. The curve properties defined for each command type are saved for the reprocessing window per client.

Show EP list

The dialog window **Endpoints** is opened in which all endpoints of the selected curve are displayed in a table. If an endpoint is added to or deleted from the curve then the table will be updated automatically.

Show coordinates

The current coordinates of the cursor are shown in the coordinate display:

X:

X-coordinate.

Y:

Y-coordinate.

4.5.2.6.4.6.3 Curve evaluation - Endpoint list

Dialog window: **Database ▸ Determinations ▸ Reprocess... ▸ Reprocessing ▸ Modifications ▸ Curve evaluation ▸ [Edit] ▸ Curve evaluation ▸ Show EP list ▸ Endpoints**

The dialog window **Endpoints** opened with the icon shows all automatically found and manually set endpoints of the selected curve in tabular form. The endpoints are sorted according to ascending volume, if an endpoint is deleted from or added to the curve then the table will be updated automatically.

Endpoint

Designation of the endpoint with number. The following names are possible:

Selection	**EP#**

EP#
Endpoint that has been determined automatically by potentiometric evaluation or set manually by using the intersection or tangent method.

Selection	**BP#**

BP#
Endpoint that has been determined by automatic break point evaluation.

Selection	**FP#**

FP#
Endpoint that has been determined by automatic fixed point evaluation.

Volume

Volume value in mL for endpoint.

Measured value

Measured value (pH) for endpoint.

ERC

ERC value for the endpoint.

Time

Time for the endpoint.

Temperature

Temperature for the endpoint.

Note

Manually set endpoints only have two measured quantities, for the other measured quantities **invalid** is entered.

[Delete]

Delete selected endpoint.

[Exit]

Close dialog window.

4.5.2.6.4.6.4 Curve evaluation - Properties

4.5.2.6.4.6.4.1 Properties curve evaluation - Overview

Dialog window: **Database ▸ Determinations ▸ Reprocess... ▸ Reprocessing ▸ Curve evaluation ▸ [Edit] ▸ Curve evaluation ▸ Icon 'Properties and Graphical display' ▸ Properties - 'Curve #'**

The properties of the curve display in the dialog window **Properties - 'Curve #'** can be set on the following 4 tabs:

- *x axis*
  Parameters for the graphical display of the curves on the x axis.
- *y axis*
  Parameters for the graphical display of the curves on the left y axis.
- *y2 axis*
  Parameters for the graphical display of the curves on the right y axis.
- *Options*
  Options for graphical display of curves.

4.5.2.6.4.6.4.2 Properties curve evaluation - x axis

Tab: **Database ▸ Determinations ▸ Reprocess... ▸ Reprocessing ▸ Curve evaluation ▸ [Edit] ▸ Curve evaluation ▸ Properties ▸ x axis**

On the tab **x axis** the parameters for the graphical display of the curves on the x axis can be set.

Command type

Shows the type of command for which the curve properties can be defined. The curve properties defined for each command type for the reprocessing window are saved per client.

Autoscaling

on | off (Default value: **on**)

If this option is switched on then all axes in the curve window will be scaled automatically. In this case the fields **Start value** and **End value** cannot be edited.

Size

Selection	**Command-dependent selection**

Command-dependent selection
Selection of the quantity to be shown on the x axis.

Label

Freely definable axis label for the x axis.

Selection	**50 characters** | **auto**
Default value	**auto**

auto
The designation from the field **Size** will be used.

Scaling

Fixed scaling of the x axis between the start value and the end value.

Start value

Initial value for scaling the x axis.

Only editable when the option Autoscaling is disabled.

Range	**-1.0E12 ... 1.0E12**
Default value	**0**

End value

End value for scaling the x axis.

Only editable when the option Autoscaling is disabled.

Range	**-1.0E12 ... 1.0E12**
Default value	**1000**

4.5.2.6.4.6.4.3 Properties curve evaluation - y axis

Tab: **Database ▸ Determinations ▸ Reprocess... ▸ Reprocessing ▸ Curve evaluation ▸ [Edit] ▸ Curve evaluation ▸ Properties ▸ y axis**

On the tab **y axis** the parameters for the graphical display of the curves on the y axis (left y axis) can be set.

Command type

Shows the type of command for which the curve properties can be defined. The curve properties defined for each command type for the reprocessing window are saved per client.

Autoscaling

on | off (Default value: **on**)

If this option is switched on then all axes in the curve window will be scaled automatically. In this case the fields **Start value** and **End value** cannot be edited.

Size

Selection	**Command-dependent selection**

Command-dependent selection
Selection of the quantiy to be shown on the y axis.

Label

Freely definable axis label for the y axis.

Selection	**50 characters** | **auto**
Default value	**auto**

auto
The designation from the field **Size** will be used.

Scaling

Fixed scaling of the y axis between the start value and the end value.

Start value

Initial value for scaling the y-axis.

Only editable when the option Autoscaling is disabled.

Range	**-1.0E12 ... 1.0E12**
Default value	**0**

End value

End value for scaling the y-axis.

Only editable when the option Autoscaling is disabled.

Range	**-1.0E12 ... 1.0E12**
Default value	**1000**

Curve

Curve color

Selection of the color for the curve line.

Selection	**13 colors** | **blue**
Default value	**blue**

Symbol

Selection of the symbol for the display of the individual measuring points.

Selection	**5 symbols** | **No symbol**
Default value	**No symbol**

No symbol
Measuring points are not shown.

Note

With curves, for which the distance between to measuring points is smaller than 5 pixels, the separate measuring points are not displayed anymore, even if a symbol has been selected. In this case, the graphics window can eventually be enlarged in order to display the symbols again.

Symbol color

Selection of the color for the measuring point symbol.

Selection	**13 colors** | **blue**
Default value	**blue**

Smoothing

Smoothing

on | off (Default value: **on**)

Switches smoothing on/off for the curve.

Smoothing factor x axis

Factor for smoothing on the x axis.

Range	**0.01 ... 1000**
Default value	**0.01**

Smoothing factor y-axis

Factor for smoothing on the y axis.

Range	**0.01 ... 1000**
Default value	**0.01**

Show with original curve

on | off (Default value: **off**)

If this check box is activated, then the original curve (solid line, same color) will be shown in addition to the smoothed curve (dotted line).

4.5.2.6.4.6.4.4 Properties curve evaluation - y2 axis

Tab: **Database ▸ Determinations ▸ Reprocess... ▸ Reprocessing ▸ Curve evaluation ▸ [Edit] ▸ Curve evaluation ▸ Properties ▸ y2 axis**

On the tab **y2 axis** the parameters for the graphical display of the curves on the y2 axis (right y axis) can be set.

Command type

Shows the type of command for which the curve properties can be defined. The curve properties defined for each command type for the reprocessing window are saved per client.

Autoscaling

on | off (Default value: **on**)

If this option is switched on then all axes in the curve window will be scaled automatically. In this case the fields **Start value** and **End value** cannot be edited.

Size

Selection	**Command-dependent selection** | **off**
Default value	**off**

Command-dependent selection
Selection of the quantity to be shown on the y2 axis.

Label

Freely definable axis label for the y2 axis.

Selection	**50 characters** | **auto**
Default value	**auto**

auto
The designation from the field **Size** will be used.

Curve

Curve color

Selection of the color for the curve line.

Selection	**13 colors** | **red**
Default value	**red**

Symbol

Selection of the symbol for the display of the individual measuring points.

Selection	**5 symbols** | **No symbol**
Default value	**No symbol**

No symbol
Measuring points are not shown.

Note

With curves, for which the distance between to measuring points is smaller than 5 pixels, the separate measuring points are not displayed anymore, even if a symbol has been selected. In this case, the graphics window can eventually be enlarged in order to display the symbols again.

Symbol color

Selection of the color for the measuring point symbol.

Selection	**13 colors** | **red**
Default value	**red**

Smoothing

Smoothing

on | off (Default value: **on**)

Switches smoothing on/off for the curve.

Smoothing factor x axis

Factor for smoothing on the x axis.

Range	**0.01 ... 1000**
Default value	**0.01**

Smoothing factor y-axis

Factor for smoothing on the y axis.

Range	**0.01 ... 1000**
Default value	**0.01**

4.5.2.6.4.6.4.5 Properties curve evaluation - Options

Tab: **Database ▸ Determinations ▸ Reprocess... ▸ Reprocessing ▸ Curve evaluation ▸ [Edit] ▸ Curve evaluation ▸ Properties ▸ Options**

On the tab **Options** the parameters for the graphical display of the curves can be set.

Command type

Shows the type of command for which the curve properties can be defined. The curve properties defined for each command type for the reprocessing window are saved per client.

Autoscaling

on | off (Default value: **on**)

If this option is switched on then all axes in the curve window will be scaled automatically. In this case the fields **Start value** and **End value** cannot be edited.

Display grid

Display grid

on | off (Default value: **off**)

If this check box is actjvated then a grid will be shown against the background.

Grid type

Selection of the type of grid line.

Selection	**5 line types**

Grid color

Selection of the grid line color.

Selection	**13 colors** | **gray**
Default value	**gray**

Background

Background color

Selection of the color for the curve background.

Selection	**13 colors** | **white**
Default value	**white**

Show endpoints

Show endpoints

on | off (Default value: **on**)

If this check box is activated then the endpoints found will be shown on the curve by the symbol □ and labeled with **EP#** (potentiometric endpoint), **BP#** (break point), **FP#** (fixed endpoint), **HP** (HNP), **MI** (minimum value) or **MA** (maximum value).

Automatic EPs

Selection of the color for automatically set endpoints.

Selection	**13 colors** | **black**
Default value	**black**

Manual EPs

Selects the color for manually set endpoints.

Selection	**13 colors** | **pink**
Default value	**pink**

Show evaluation lines

Show evaluation lines

on | off (Default value: **off**)

If this check box is activated the evaluation lines (tangents, auxiliary lines) will be shown.

Tangents

Selection of the color for the tangents and auxiliary lines.

Selection	**13 colors | light green**
Default value	**light green**

Auxiliary lines

Selection of the color for the auxiliary lines.

Selection	**13 colors | blue**
Default value	**blue**

4.5.2.6.4.7 Result Result name

Dialog window: **Database ▸ Determination ▸ Reprocessing ▸ Modifications ▸ Calculations ▸ [New]/[Properties] ▸ Result 'Result name' - RS##**

In the dialog window **Result Result name - RS##** results and their properties can be edited.

The dialog window consists of the following two tabs:

4.5.2.6.4.7.1 Definition

Tab: **Database ▸ Determinations ▸ Reprocessing ▸ Modifications ▸ Calculations ▸ [New]/[Properties] ▸ Result 'Result name' - RS## ▸ Definition**

Result variable

Variable, which is automically generated by the program during the evaluation or by the results defined by the user.

Result name

Name of the result. This name will be shown in the result view as well as in the report. The result name can be used in further calculations as variable **RS.Result name.VAL**.

Input	**50 characters**
Default value	**empty**

Formula

Calculation formula which can be generated after pressing in the formula editor.

Formula lines can be deleted according to normal rules (**[Delete]**), copied (**[Ctrl+C]**), cut (**[Ctrl+x]**) and be pasted (**[Ctrl+v]**)

Input	**1000 characters**
Default value	**empty**

Unit

Unit of the result for the output (text only). The unit can be used in further calculations as variable **'RS.Result name.UNI'**.

Input	**16 characters**
Default value	**empty**

Decimal places

Number of decimal places for the output of the calculated result. This parameter is ignored for results of the type **text** or **date/time**.

Range	**0 ... 5**
Default value	**2**

Assignment

Assign a result to a defined result column **RS01 ... RS25**. This order specifies in which of the 25 available result columns in the determination overview the result is being added to. Per calculation the result columns **RS01 ... RS25** are available. Only the columns still free are made available. With **none** the result will not be assigned to any column.

Range	**RS01 ... RS25**
Default value	**none**

Statistics

on | off (Default value: **on**)

If this check box is activated, the mean value and the absolute and relative standard deviation are calculated for the result. This field is only active when the statistics is enabled in the method of the imported determination (i.e. the statistics can only then be disabled and enabled again, if it has already been enabled in the method).

Description

Freely selectable description of the result.

Input	**1000 characters**
Default value	**empty**

4.5.2.6.4.7.2 Monitoring

Tab: **Database ▸ Determinations ▸ Reprocessing ▸ Modifications ▸ Calculations ▸ [New]/[Properties] ▸ Result 'Result name' - RS## ▸ Monitoring**

Result monitoring

If this check box is activated, then the limit values for the result of the calculation formula are being monitored.

Lower limit

Lower limit for the result. This parameter is only editable when the result monitoring is enabled.

Input	**10 digits**
Default value	**0**

Upper limit

Upper limit for the result. This parameter is only editable when the result monitoring is enabled.

Input	**10 digits**
Default value	**99999.99999**

Message

Only editable when the check box **Monitoring result** is activated.

Selection	**Display message** | **Record message**

Display message
If this option is selected, the message "The limit value for the result 'result name' has been exceeded." appears. At the same time the message is documented, i.e. it is saved in the determination.

Record message
If this option is selected, the message "The limit value for the result 'result name' has been exceeded." is saved in the determination.

4.5.2.6.5 Result view

Subwindow: **Database ▸ Determinations ▸ Reprocess... ▸ Reprocessing ▸ Result view**

In the subwindow **Result view** of the dialog window **Reprocessing** results and raw data are displayed on the following two tabs:

4.5.2.6.5.1 Result view - Results overview

Tab: **Database ▸ Determinations ▸ Reprocess... ▸ Reprocessing ▸ Result display ▸ Result overview**

On the tab **Result view** of the subwindow **Result display** the results calculated during the calculating commands and the variables used for are displayed and updated with each recalculation.

The following elements are displayed:

Title

Name of the calculation command (1C...9C).

Result

Result name, result value with defined number of decimal places, units.

Statistical evaluations

Results of the statistical evaluation (mean value, absolute and relative standard deviations, number of measured values used for the statistics).

Navigation

If several determinations are selected for reprocessing then the navigation buttons can be used to switch between showing the results of the individual determinations:

Jump to first determination.

Jump to previous determination.

Jump to next determination.

Jump to last determination.

4.5.2.6.5.2 Result view - Raw data

Tab: **Database** ▸ **Determinations** ▸ **Reprocess...** ▸ **Reprocessing** ▸ **Result display** ▸ **Raw data**

On the tab **Raw data** of the subwindow **Result view** the raw data generated in commands with evaluations will be shown and updated at each recalculation.

If several determinations are selected for reprocessing then the navigation buttons can be used to switch between showing the results of the individual determinations:

Jump to first determination.

Jump to previous determination.

Jump to next determination.

Jump to last determination.

4.5.2.6.6 Modification comment for determinations

Dialog window: **Database** ▸ **Determinations** ▸ **Delete/Reprocess...**

If the option **Comment on modification** of determinations is switched on in the security settings then before the modified sample data is accepted the window **Modification comment determination** first appears in which a

Reason must be selected and a **Comment** on the modification must be entered.

Reason

Selection from the default reasons defined for the category **Modifications of determinations** in the **Security settings** dialog window.

Selection	**Selection from default reasons**

Comment

Entry of a comment on the modification of the determinations.

Input	**1000 characters**

4.5.2.7 Sending determinations to

Dialog window: **Database ▸ Determinations ▸ Send to...**

The menu item **Determinations ▸ Send to...** opens the dialog window **Send determinations per E-mail**.

Selection	**Determination ID** | **Sample identification** | **File name**
Default value	**Determination ID**

Determination ID
With this option, the name of the export file is formed out of an unambiguous determination ID, the computer name, the date stamp - **YYYYMMDD-HHMMSS** and the suffix for the format.

Sample identification
With this option the sample identification is selected. The name of the export file is formed out of this ID, the computer name, the date stamp **YYYYMMDD-HHMMSS** and the suffix for the format. If the created name exists already in the directory, a version number will be appended additionally to the date.

File name
With this option the name under which the export file of a determination is saved as an attachment to the E-mail message is entered. If more than one determination is selected, then a sequential number will be added to this name for each determination.

After each confirmation of the file name with **[OK]** every determination is exported to a separate ***.tdet** file. The standard Windows E-mail Client will open with an empty message and the export files will automatically be added as an attachment.

4.5.2.8 Exporting determinations

Dialog window: **Database** ▸ **Determinations** ▸ **Export...** ▸ **Export determinations**

Click on menu item**Determinations** ▸ **Export...** to open the dialog window **Export determinations** for exporting the selected determinations.

Selection

Selection of determinations for export.

Selection	**All selected data records** | **All filtered data records**
Default value	**All selected data records**

All selected data records
All those determinations are exported that have been selected (marked) in the determination table.

All filtered data records
All those determinations from the whole determination table are exported that correspond to the set filter.

Export template

Selection of the Export template for data export.

Selection	**'Export template'**

4.5.2.9 Importing determinations

Dialog window: **Database** ▸ **Determinations** ▸ **Import...** ▸ **Import determinations**

With the menu item **Determinations** ▸ **Import...** the dialog window **Import determination** opens, in which the determinations to be imported must be selected. These determinations are then imported into the open Database.

Note

Exported determinations can be imported in the file format ***.txt (PC LIMS report)** and ***.tdet (tiBase format)**.

4.5.2.10 Deleting determinations

Menu item: **Database** ▸ **Determinations** ▸ **Delete**

With the symbol or the menu item **Determinations** ▸ **Delete**, the selected determinations are deleted after the confirmation request.

Note

If a database is opened simultaneously on several clients and if determinations are deleted on a client then these will still be shown in the determination table of the other clients until the table is updated. All the fields of these determinations will then have the entry **deleted**.

Note

If the check box **Comment on modification of determinations** in the **Security settings** is activated, then the window **Modification comment determination** will appear before the modification is saved.

4.5.2.11 Determination overview - Print

Dialog window: **Database ▸ File ▸ Print ▸ Determination overview... ▸ Print determination overview (PDF)**

The Menu item **File ▸ Print ▸ Determination overview...** opens the dialog window **Print determination overview (PDF)**.

Selection

Selection	**Selected determinations** | **All filtered determinations**
Default value	**Selected determinations**

Selected determinations
If this option is selected, then a list with all determinations that are selected (marked) in the determination table will be produced.

All filtered determinations
If this option is selected, then a list with all the determinations in the determination table that meet the filter criterion will be produced.

Orientation

Selection	**Portrait** | **Landscape**
Default value	**Portrait**

Portrait
If this option is selected then the determination table will be produced in portrait format.

Landscape
If this option is selected then the determination table will be produced in landscape format.

[OK]

The determination table is produced in the required format as a PDF file and opened directly with Acrobat Reader; it can then be printed out and/or saved.

4.5.2.12 Determinations - Print report

Dialog window: **Database ▸ File ▸ Print ▸ Report... ▸ Report output**

The menu item **File ▸ Print ▸ Report...** opens the dialog window **Report output**.

Selection

Selection	**Selected determinations** | **All filtered determinations**
Default value	**Selected determinations**

Selected determinations
If this option is selected, then the reports will be produced for all determinations that are selected (marked) in the determination table.

All filtered determinations
If this option is selected, then the reports will be produced for all the determinations in the determination table that meet the filter criterion.

Report type

Selection	**Original report(s)** | **Report template**
Default value	**Original report(s)**

Original report(s)
If this option is selected then the reports produced during the determination will appear at the **Output target** defined below.

Report template
If this option is selected then reports according to the selected Report template will be produced at the **Output target** defined below.

Note

Original report is used to refer to a report, which has been automatically generated at the creation of the **determination version**. If a determination is being reprocessed, a new determination version and therefore also a new original report is created.

In order to print the report of the non-reprocessed determination the determination 1 must be selected.

Output target

Printer

on | off (Default value: **on**)

If this check box is activated, the reports are printed on the selected printer.

PDF file

on | off (Default value: **off**)

If this check box is activated the reports are put out as PDF files under the entered file name.

Note

If several reports are produced simultaneously as a PDF file then an index will be automatically appended to the file name.

4.5.2.13 Determinations - Displaying history

Menu item: **Database** ▸ **Determinations** ▸ **Show history**

Switch history view on/off

With the menu item **Determinations** ▸ **Display history...** or the symbol only the currently focused determination in the Determination table as well as all the previous versions of this determination will be shown.

If the History view with the menu item **Determinations** ▸ **Display history...** or the symbol is disabled again, then the original selection of determinations in the Determination table will appear again.

4.5.2.14 Determinations - Make current

Menu item: **Database** ▸ **Determinations** ▸ **Make current**

Make old version current

With the menu item **Determinations** ▸ **Make current...** or the symbol the determination version selected in the determination table will again be made the current determination version. This creates a new determination whose version number is increased by **+1** compared with the last version to have been saved.

4.5.2.15 Determinations - Show calibration curve

Dialog window: **Database ▸ Determinations ▸ Show calibration curve... ▸ Calibration curve**

With the menu item **Determinations, Show calibration curve...** or the symbol the calibration or standard addition curve is shown for the calibration selected in the dialog window **Calibration curve**.

Calibration curve for CAL LOOP pH

In the dialog window **Calibration curve** a tab marked with the command name showing the calibration curve and calibration data will be displayed for each CAL LOOP pH command . The command type is shown above the calibration curve. The curve display shows the measured values and the curve calculated from these measured values. Listed below are the individual measured values and the results for **Slope**, **E(0)** and **Variance**.

Calibration curve for CAL LOOP Conc

In the dialog window **Calibration curve** a tab marked with the command name showing the calibration curve and calibration data will be displayed for each CAL LOOP Conc command . The command type is shown above the calibration curve. The curve display shows the measured values and the curve calculated from these measured values. Listed below are the individual measured values and the results for **Slope**, **E(0)**, **c(blank)** and **Variance**. Calibration curve for CAL LOOP Conc

Standard addition curve for STDADD

In the dialog window **Calibration curve** a tab marked with the command name showing the standard addition curve and evaluation data will be displayed for each STDADD command . The command type is shown above the calibration curve. The curve display shows the measured values and the curve calculated from these measured values. Listed below are the individual measured values and the results for **Determination, Show calibration curve...**, **E(0)**, **Determination, Show calibration curve...** and **Variance**.

Note

Calibration curves cannot be printed out directly from the dialog window **Calibration curve**. Instead you should use a report with a report template which contains the fixed report .

4.5.2.16 Determinations - Control chart

Dialog window: **Database** ▸ **Determinations** ▸ **Control chart…** ▸ **Control chart**

With the menu item **Determinations, Control chart...** or the symbol the dialog window **Control chart - 'Template name'** opens in which a control chart is shown for the selected determinations containing statistical evaluation (mean value, number of determinations, absolute and relative standard deviation) according to the loaded template.

Template

Selection	**Standard** | **'Template name'**
Default value	**Standard**

Standard
Selection of the saved templates for control charts *(see Chapter 4.4.3.2.1, page 170)*. When the dialog window is opened, the last template to have been loaded will be shown. If a new template is selected then the display will be updated automatically.

[Templates]

Open the dialog window **Templates for control charts**.

Graphics presentation

Shows the measured values together with warning and intervantion limits and statistical values according to the settings on the selected control chart. If the cursor is moved to a point then the number, date and value appear as a tooltip. The sorting and the date and time for the first and last point are shown as the legend.

[Print (PDF)]

Open dialog window **Print control chart (PDF)***(see Chapter 4.5.2.19, page 250)*. The content of the control chart can be shown as a PDF file in the required format.

4.5.2.17 Determinations - Overlay curves

Menu item: **Database** ▸ **Determinations** ▸ **Overlay curves…** ▸ **Overlay curves**

With the menu item **Determinations, Overlay curves...** or the symbol the dialog window **Overlay curves** opens in which overlaid curves of the selected determinations are shown according to the loaded template.

Template

Selection of a saved template for showing overlaying curves.

Selection	**Standard** | **"Template"** | **Last saved template**
Default value	**Last saved template** If a new template is selected then the display will be updated automatically.

Note

In the template the **Command type** is defined for which the overlaying of curves is possible. Curves from the selected determinations can only be overlaid when the determination method contains a command with this **Command type** (e.g. **DET**).

Command name

Selection of the command, whose curves are to be displayed with the selected template.

Selection	**"Command"** This selection is only necessary if the method contains several commands of the same **Command type**.

[Templates]

Open the dialog window **Curve overlay templates**.

Graphics presentation

Shows the curves according to the settings of the selected template. The command type (e.g. **DET pH**) is shown centrally above the graph. At the right of the curve the legend is shown with the line number in the determination table belonging to the determination.

The legend consists of the content of a data field which can be defined in the options of the template and of a counter, which identifies the curves if the same command has been executed several times during a determination.

[Print (PDF)]

Open the dialog window **Print curves (PDF)** *(see Chapter 4.5.2.18, page 249)*. The content of the curve overlay with legend can be shown as a PDF file in the required format.

4.5.2.18 Print overlaid curves

Dialog window: **Database** ▸ **Determinations** ▸ **Overlay curves...** ▸ **Overlay curves** ▸ **[Print (PDF)]** ▸ **Print curves (PDF)**

With **[Print (PDF)]** in the dialog window **Overlay curves** the dialog window **Print curves (PDF)** is openend.

Orientation

Selection	**Portrait** | **Landscape**
Default value	**Landscape**

Portrait
Produces control chart in portrait format.

Landscape
Produces control chart in landscape format.

Comment

Possibility of entering comments on the control chart which will be produced together with the control chart.

Input	**1000 characters**

[OK]

Close dialog window. The control chart is shown in the required format as a PDF file and opened directly with the Acrobat Reader; it can then be printed out and/or saved.

4.5.2.19 Print control chart

In the dialog window **Print control chart (PDF)** the format for the printout of the control chart is indicated.

Orientation

Selection	**Portrait** | **Landscape**
Default value	**Landscape**

Portrait
Produces control chart in portrait format.

Landscape
Produces control chart in landscape format.

Comment

Possibility of entering comments on the control chart which will be produced together with the control chart.

Input	**1000 characters**

[OK]

The control chart is shown in the required format as a PDF file and opened directly with the Acrobat Reader; it can then be printed out and/or saved.

4.6 Subwindow Information

4.6.1 Information - Overview

Subwindow: **Database ▸ Information**

General

In the subwindow **Information** general information about the focused determination in the determination table is shown. The subwindow can be switched on in the program part **Database** during the definition of the layout and thus made visible. It can be enlarged and reduced as required; it can also be maximized.

Tabs

Information about the determination is shown on the following tabs:

- *Determination*
  Display of general information about determination.
- *Method*
  Shows general information about the method used.
- *Sample*
  Shows general information about the sample used.
- *Configuration*
  Shows general information about the devices, sensors and common variables used.
- *Messages*
  Shows messages about the determination.
- *Determination comment*
  Shows the comment on the determination.

4.6.2 Information - Determination

Tab: **Database ▸ Information ▸ Determination**

Display of general information about determination.

Identification

Information about the identification of the determination.

Determination ID:

Unambiguous and unmistakable identification for the determination.

Sample number:

Shows the **Sample number** entered in the run window.

Start counter:

Shows the start counter which is increased by +1 at the start of each determination. The start counter is saved for each client and cannot be reset.

Recording

Information about recording the determination.

Determination start:

Date and time at start of determination.

Determination duration:

Duration of the determination from its start to its end or termination in s.

Determination run:

Way in which the determination was ended:

Selection	**Regular without errors** | **Manual stop** | **error**

Regular without errors
The determination was finished automatically after the method was processed normally and without any errors.

Manual stop
The determination has been ended with the **[Stop]** fixed key.

error
The determination has been ended because an error occured.

User (short name):

Short name of the user.

Program version

Display of program version and build number of **tiBase** with which the PC_LIMS report was imported and edited.

Status/Version

Information about the determination version.

Determination status:

Selection	**original** | **modified**

original
Determination data unaltered.

modified
Determination data modified.

Determination version:

Version of the determination. The unaltered original determination has the version number **1**, reprocessed determinations have a version number **>1**.

Reprocessing date:

Date and time when the reprocessed determination version was saved.

Reprocessed by (short name):

Short name of user logged in when determination was reprocessed. If a new version was generated automatically by reprocessing statistically linked determinations without modification of determination data, tiBase 1.0 will be displayed here.

Reprocessed by (full name):

Full name of user logged in when determination was reprocessed. If a new version was generated automatically by reprocessing statistically linked determinations without modification of determination data, **New generated version for statistics** will be displayed here.

Modification reason determination:

Reason for the determination modification.

Modification comment determination:

User comment on the determination modification.

Signature Level #

Information about the signatures at Level 1 or Level 2 in chronological order.

Signature date:

Date and time at which the determination was signed.

Signed by (short name):

Short name of user who signed the determination.

Signed by (full name):

Full name of user who signed the determination.

Signature reason:

Reason for signature selected by user.

Signature comment:

User comments on signing the determination.

4.6.3 Information - Method

Tab: **Database** ▸ **Information** ▸ **Method**

Shows general information about the method used.

Identification

Information about the identification of the method.

Method name:

Name of the method.

Method ID:

Unambiguous identification for the method.

Method comment:

Method comment (**Command comment** on **START** command).

Status/Version

Information about method version.

Method status:

Selection	**new** | **modified** | **saved** | **reviewed** | **released**

new
The method has been newly created and not yet saved.

modified
The method has been reprocessed but not saved.

saved
The method has been saved.

reviewed
The method has been signed at stage 1.

released
The method has been signed at stage 2.

Method version:

Version of the method the determination was created with.

Method saving date:

Date and time when the modified method version was saved.

Method saved by (short name):

Short name of user logged in when modified method was saved.

Modification reason method:

Reason for the method modification.

Modification comment method:

User comment on the method modification.

Signature Level #

Information about the signatures at Level 1 or Level 2 in chronological order.

Signature date:

Date and time at which the method was signed.

Signed by (short name):

Short name of the user who signed the method.

Signature reason:

Reason for signature selected by user.

Signature comment:

User comments on signing the method.

4.6.4 Information - Sample

Tab: **Database** ▸ **Information** ▸ **Sample**

Shows general information about the sample used.

Sample data

Information about the sample. The only sample data shown is that for which a value is available.

Sample size:

Value for the sample size.

Sample size unit:

Unit of sample size.

Identification

Information about the sample identifications.

ID1

Shows the sample identification saved under **ID1**. The identifications will only be shown when a value is present.

ID2

Shows the sample identification saved under **ID2**. The identifications will only be shown when a value is present.

4.6.5 Information - Configuration

Tab: **Database** ▸ **Information** ▸ **Configuration**

Shows general information about the devices, sensors and common variables used.

Device 'Software name'

Information about the device used (only the existing device information will be shown).

Device type:

Name of the software.

Program version:

Version of the software.

Device serial number:

Serial number of the software.

Device 'Device name'

Information about the device used (only the existing device information will be shown).

Device type:

Type of device.

Program version:

Device program version.

Device serial number:

Serial number of the instrument.

Rack name:

Name of the rack on the sample changer.

Rack code:

Rack code of the rack on the sample changer.

Tower:

Number of the tower on which a Swing Head is used.

Swing Head type:

Type of Swing Head attached to tower.

Swing Head serial number:

Serial number of Swing Head attached to tower.

Measuring input:

Number of the measuring input (+ designation **iConnect** for intelligent sensors).

ADC type:

Type of analog/digital converter.

ADC serial number:

Serial number of measuring input.

Temperature sensor:

Type of connected temperature sensor.

Stirrer:

Stirrer connection at device.

Stirrer type:

Type of stirrer.

Stirrer serial number:

Serial number of stirrer.

Dosing device:

Dosing connection at device.

Dosing device type:

Dosing device type.

Dosing device serial number:

Serial number of dosing device.

Exchange/Dosing unit:

Type of exchange or dosing unit.

Remote Box:

Connection to device.

Buret serial number

Serial number of the buret.

Solution 'Solution name'

Solution name:

Name of the solution.

Concentration:

Concentration value and unit of the solution.

Titer:

Titer value and units of the solution.

Date titer det.:

Date of the titer determination.

Titer method:

Method with which the titer was determined.

Sensor 'Sensor name'

Information about the sensor used.

Sensor type:

Type of sensor (+ designation **IS** for intelligent sensors).

Sensor serial number:

Serial number of sensor.

Order number:

Order number of sensor.

Slope:

Electrode slope of the sensor used (in % for pH sensor or in mV for ISE).

pH (0):

Electrode zero point of the sensor used (dimensionless for pH sensor).

Calibration temperature:

Temperature during the calibration.

Calibration method:

Shows the method with which the calibration was carried out.

User:

Shows the user logged in during the calibration or who entered the calibration data manually.

E (0):

Electrode zero point of the sensor used (in mV only for ISE).

c (blank):

Blank value of the ISE sensor used.

Cell constant:

Cell constant of the conductivity sensor used.

Common variable 'Name'

Information about the common variable used.

Value:

Value and unit of the common variables at the start of the determination.

4.6.6 Information - Messages

Tab: **Database** ▸ **Information** ▸ **Messages**

Shows messages generated during the determination run.

'Time'

Shows the time at which the message was generated in the run (date, time, UTC in the format **YYYY-MM-DD hh:mm:ss UTC.....**).

Message title:

Shows the message title and number.

Message source:

Shows from where the message comes:

4.6.7 Information - Determination comment

Tab: **Database** ▸ **Information** ▸ **Determination comment**

Shows the comment on the determination.

Determination comment:

Shows the comment entered for the determination.

4.7 Subwindow Results

4.7.1 Results - General

Subwindow: **Database ▸ Results**

In the subwindow **Results** in the program part **Database** the results calculated in the calculation commands and the variables used for are shown. It shows the results overview, the raw data of the commands with evaluations as well as the results calculated in the calculation commands, statistical evaluations, formulas and all variables used for for the determination selected in the determination overview.

When navigating in the determination overview this data will be updated automatically (with a certain delay).

The subwindow **Results** can be switched on and made visible in the definition of the layout in the program part **Database**. It can be enlarged and reduced as required; it can also be maximized.

Tabs

The results of the determination are shown on the following tabs:

- *Results overview*
  Shows the results overview for all calculation commands.
- *Raw data*
  Display of evaluation raw data for commands with evaluations.
- *"Command name"*
  Show the results for a single calculation command. A tab with the corresponding command name is provided for each calculation command.

4.7.2 Results - Results overview

Tab: **Database ▸ Result ▸ Results overview**

On the tab **Results overview** the results for all calculation commands and (if existent and desired) the corresponding statistical evaluations are displayed. The display of the statistical evaluations can be selected in the dialog window **Properties result window**

Command "Command name"

For each **CALC** command a results overview is shown according to the following pattern:

"Command name"

Name of the **CALC** command.

Note

Only the last results having been calculated will be shown. For example, if there are several commands that generate a result with the same name, then the corresponding result data will be shown only for that command that was the last to calculate the result. Nothing will be shown for the other commands.

"Result"

Shows the result name and result value with the defined number of decimal places and units.

Note

If a result value is monitored and lies within the limit value defined in the CALC command then the text will be shown in green, if it lies outside the limits it will be shown in red text color.

Mean value:

Shows the mean value for statistically evaluated results.

s(abs):

Shows the absolute standard deviation for statistically evaluated results.

s(rel):

Shows the relative standard deviation for statistically evaluated results.

Minimum:

Shows the minimum value for statistically evaluated results.

Maximum:

Shows the maximum value for statistically evaluated results.

n:

Shows the number of measurements for statistically evaluated results.

4.7.3 Results - Raw data

Tab: **Database** ▸ **Results** ▸ **Results**

On the tab **Raw data** the evaluation results of commands with evaluations are shown.

"Command name"

For each CALC command the raw data is displayed in six columns:

Column 1

Display of the command type.

Column 2

Shows the variable designation for the raw data.

Columns 3-6

Shows the raw data.

The following tables show the raw data depending on the command type. For each variable the **Variable name**, **Unit** and **Number of decimal places** is indicated.

Table 1 Command DET pH

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EP#	**EP#.VOL** , **mL** , **4**	**EP#.MEA** , **pH** , **3**	**EP#.TIM** , **s** , **1**	**EP#.TEM** , **°C** , **1**
FP#	**FP#.VOL** , **mL** , **4**	**FP#.MEA** , **pH** , **3**	**FP#.TIM** , **s** , **1**	**FP#.TEM** , **°C** , **1**
HP#	**HP#.VOL** , **mL** , **4**	**HP#.MEA** , **pH** , **3**	**HP#.TIM** , **s** , **1**	**HP#.TEM** , **°C** , **1**
MI	**MI.VOL** , **mL** , **4**	**MI.MEA** , **pH** , **3**	**MI.TIM** , **s** , **1**	**MI.TEM** , **°C** , **1**
MA	**MA.VOL** , **mL** , **4**	**MA.MEA** , **pH** , **3**	**MA.TIM**, **s**, **1**	**MA.TEM** , **°C** , **1**
BP#	**BP#.VOL** , **mL** , **4**	**BP#.MEA** , **pH** , **3**	**BP#.TIM** , **s** , **1**	**BP#.TEM**, **°C**, **1**

Table 2 Command DET U

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EP#	**EP#.VOL** , **mL** , **4**	**EP#.MEA** , **mV** , **1**	**EP#.TIM** , **s** , **1**	**EP#.TEM** , **°C** , **1**
FP#	**FP#.VOL** , **mL** , **4**	**FP#.MEA** , **mV** , **1**	**FP#.TIM** , **s** , **1**	**FP#.TEM** , **°C** , **1**
HP#	**HP#.VOL** , **mL** , **4**	**HP#.MEA** , **mV** , **1**	**HP#.TIM** , **s** , **1**	**HP#.TEM** , **°C** , **1**
MI	**MI.VOL** , **mL** , **4**	**MI.MEA** , **mV** , **1**	**MI.TIM** , **s** , **1**	**MI.TEM** , **°C** , **1**
MA	**MA.VOL** , **mL** , **4**	**MA.MEA** , **mV** , **1**	**MA.TIM**, **s**, **1**	**MA.TEM** , **°C** , **1**
BP#	**BP#.VOL** , **mL** , **4**	**BP#.MEA** , **mV** , **1**	**BP#.TIM** , **s** , **1**	**BP#.TEM**, **°C**, **1**

Table 3 Command DET Ipol

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EP#	**EP#.VOL , mL , 4**	**EP#.MEA , mV , 1**	**EP#.TIM , s , 1**	**EP#.TEM , °C , 1**
FP#	**FP#.VOL , mL , 4**	**FP#.MEA , mV , 1**	**FP#.TIM , s , 1**	**FP#.TEM , °C , 1**
HP#	**HP#.VOL , mL , 4**	**HP#.MEA , mV , 1**	**HP#.TIM , s , 1**	**HP#.TEM , °C , 1**
MI	**MI.VOL , mL , 4**	**MI.MEA , mV , 1**	**MI.TIM , s , 1**	**MI.TEM , °C , 1**
MA	**MA.VOL , mL , 4**	**MA.MEA , mV , 1**	**MA.TIM, s, 1**	**MA.TEM , °C , 1**
BP#	**BP#.VOL , mL , 4**	**BP#.MEA , mV , 1**	**BP#.TIM , s , 1**	**BP#.TEM, °C, 1**

Table 4 Command DET Upol

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EP#	**EP#.VOL , mL , 4**	**EP#.MEA , µA , 1**	**EP#.TIM , s , 1**	**EP#.TEM , °C , 1**
FP#	**FP#.VOL , mL , 4**	**FP#.MEA , µA , 1**	**FP#.TIM , s , 1**	**FP#.TEM , °C , 1**
HP#	**HP#.VOL , mL , 4**	**HP#.MEA , µA , 1**	**HP#.TIM , s , 1**	**HP#.TEM , °C , 1**
MI	**MI.VOL , mL , 4**	**MI.MEA , µA , 1**	**MI.TIM , s , 1**	**MI.TEM , °C , 1**
MA	**MA.VOL , mL , 4**	**MA.MEA , µA , 1**	**MA.TIM, s, 1**	**MA.TEM , °C , 1**
BP#	**BP#.VOL , mL , 4**	**BP#.MEA , µA , 1**	**BP#.TIM , s , 1**	**BP#.TEM, °C, 1**

Table 5 Command MET pH

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EP#	**EP#.VOL , mL , 4**	**EP#.MEA , pH , 3**	**EP#.TIM , s , 1**	**EP#.TEM , °C , 1**
FP#	**FP#.VOL , mL , 4**	**FP#.MEA , pH , 3**	**FP#.TIM , s , 1**	**FP#.TEM , °C , 1**
HP#	**HP#.VOL , mL , 4**	**HP#.MEA , pH , 3**	**HP#.TIM , s , 1**	**HP#.TEM , °C , 1**
MI	**MI.VOL , mL , 4**	**MI.MEA , pH , 3**	**MI.TIM , s , 1**	**MI.TEM , °C , 1**
MA	**MA.VOL , mL , 4**	**MA.MEA , pH , 3**	**MA.TIM, s, 1**	**MA.TEM , °C , 1**
BP#	**BP#.VOL , mL , 4**	**BP#.MEA , pH , 3**	**BP#.TIM , s , 1**	**BP#.TEM, °C, 1**

Table 6 Command MET U

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EP#	**EP#.VOL , mL , 4**	**EP#.MEA , mV , 1**	**EP#.TIM , s , 1**	**EP#.TEM , °C , 1**
FP#	**FP#.VOL , mL , 4**	**FP#.MEA , mV , 1**	**FP#.TIM , s , 1**	**FP#.TEM , °C , 1**
HP#	**HP#.VOL , mL , 4**	**HP#.MEA , mV , 1**	**HP#.TIM , s , 1**	**HP#.TEM , °C , 1**
MI	**MI.VOL , mL , 4**	**MI.MEA , mV , 1**	**MI.TIM , s , 1**	**MI.TEM , °C , 1**
MA	**MA.VOL , mL , 4**	**MA.MEA , mV , 1**	**MA.TIM, s, 1**	**MA.TEM , °C , 1**
BP#	**BP#.VOL , mL , 4**	**BP#.MEA , mV , 1**	**BP#.TIM , s , 1**	**BP#.TEM, °C, 1**

Table 7 Command MET Ipol

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EP#	**EP#.VOL , mL , 4**	**EP#.MEA , mV , 1**	**EP#.TIM , s , 1**	**EP#.TEM , °C , 1**
FP#	**FP#.VOL , mL , 4**	**FP#.MEA , mV , 1**	**FP#.TIM , s , 1**	**FP#.TEM , °C , 1**
HP#	**HP#.VOL , mL , 4**	**HP#.MEA , mV , 1**	**HP#.TIM , s , 1**	**HP#.TEM , °C , 1**
MI	**MI.VOL , mL , 4**	**MI.MEA , mV , 1**	**MI.TIM , s , 1**	**MI.TEM , °C , 1**
MA	**MA.VOL , mL , 4**	**MA.MEA , mV , 1**	**MA.TIM, s, 1**	**MA.TEM , °C , 1**
BP#	**BP#.VOL , mL , 4**	**BP#.MEA , mV , 1**	**BP#.TIM , s , 1**	**BP#.TEM, °C, 1**

Table 8 Command MET Upol

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EP#	**EP#.VOL , mL , 4**	**EP#.MEA , µA , 1**	**EP#.TIM , s , 1**	**EP#.TEM , °C , 1**
FP#	**FP#.VOL , mL , 4**	**FP#.MEA , µA , 1**	**FP#.TIM , s , 1**	**FP#.TEM , °C , 1**
HP#	**HP#.VOL , mL , 4**	**HP#.MEA , µA , 1**	**HP#.TIM , s , 1**	**HP#.TEM , °C , 1**
MI	**MI.VOL , mL , 4**	**MI.MEA , µA , 1**	**MI.TIM , s , 1**	**MI.TEM , °C , 1**
MA	**MA.VOL , mL , 4**	**MA.MEA , µA , 1**	**MA.TIM, s, 1**	**MA.TEM , °C , 1**
BP#	**BP#.VOL , mL , 4**	**BP#.MEA , µA , 1**	**BP#.TIM , s , 1**	**BP#.TEM, °C, 1**

Table 9 Command SET pH

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EP#	**EP#.VOL , mL , 4**	**EP#.MEA , pH , 3**	**EP#.TIM , s , 1**	**EP#.TEM , °C , 1**
DRI	**DRI , µL/min , 1**			
DTI	**DTI , s , 1**			
FP#	**FP#.VOL , mL , 4**	**FP#.MEA , pH , 3**	**FP#.TIM , s ,** 1	**FP#.TEM , °C , 1**
MI	**MI.VOL , mL , 4**	**MI.MEA , pH , 3**	**MI.TIM , s , 1**	**MI.TEM , °C , 1**
MA	**MA.VOL , mL , 4**	**MA.MEA , pH , 3**	**MA.TIM, s, 1**	**MA.TEM , °C , 1**

Table 10 Command SET U

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EP#	**EP#.VOL , mL , 4**	**EP#.MEA , mV , 1**	**EP#.TIM , s , 1**	**EP#.TEM , °C , 1**
DRI	**DRI , µL/min , 1**			
DTI	**DTI , s , 1**			
FP#	**FP#.VOL , mL , 4**	**FP#.MEA , mV , 1**	**FP#.TIM , s ,** 1	**FP#.TEM , °C , 1**
MI	**MI.VOL , mL , 4**	**MI.MEA , mV , 1**	**MI.TIM , s , 1**	**MI.TEM , °C , 1**
MA	**MA.VOL , mL , 4**	**MA.MEA , mV , 1**	**MA.TIM, s, 1**	**MA.TEM , °C , 1**

Table 11 Command SET Ipol

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EP#	**EP#.VOL , mL , 4**	**EP#.MEA , mV , 1**	**EP#.TIM , s , 1**	**EP#.TEM , °C , 1**
DRI	**DRI , µL/min , 1**			
DTI	**DTI , s , 1**			
FP#	**FP#.VOL , mL , 4**	**FP#.MEA , mV , 1**	**FP#.TIM , s , 1**	**FP#.TEM , °C , 1**
MI	**MI.VOL , mL , 4**	**MI.MEA , mV , 1**	**MI.TIM , s , 1**	**MI.TEM , °C , 1**
MA	**MA.VOL , mL , 4**	**MA.MEA , mV , 1**	**MA.TIM, s, 1**	**MA.TEM , °C , 1**

Table 12 Command SET Upol

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EP#	**EP#.VOL , mL , 4**	**EP#.MEA , µA , 1**	**EP#.TIM , s , 1**	**EP#.TEM , °C , 1**
DRI	**DRI , µL/min , 1**			
DTI	**DTI , s , 1**			
FP#	**FP#.VOL , mL , 4**	**FP#.MEA , µA , 1**	**FP#.TIM , s , 1**	**FP#.TEM , °C , 1**
MI	**MI.VOL , mL , 4**	**MI.MEA , µA , 1**	**MI.TIM , s , 1**	**MI.TEM , °C , 1**
MA	**MA.VOL , mL , 4**	**MA.MEA , µA , 1**	**MA.TIM, s, 1**	**MA.TEM , °C , 1**

Table 13 Command KFT Ipol

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EP	**EP.VOL , mL , 4**	**EP.MEA , mV , 1**	**EP.TIM , s , 1**	**EP.TEM , °C , 1**
DRI	**DRI , µL/min , 1**			
DTI	**DTI , s , 1**			
FP#	**FP#.VOL , mL , 4**	**FP#.MEA , mV , 1**	**FP#.TIM , s , 1**	**FP#.TEM , °C , 1**
MI	**MI.VOL , mL , 4**	**MI.MEA , mV , 1**	**MI.TIM , s , 1**	**MI.TEM , °C , 1**
MA	**MA.VOL , mL , 4**	**MA.MEA , mV , 1**	**MA.TIM, s, 1**	**MA.TEM , °C , 1**

Table 14 Command KFT Upol

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EP	**EP.VOL , mL , 4**	**EP.MEA , µA , 1**	**EP.TIM , s , 1**	**EP.TEM , °C , 1**
DRI	**DRI , µL/min , 1**			
DTI	**DTI , s , 1**			
FP#	**FP#.VOL , mL , 4**	**FP#.MEA , µA , 1**	**FP#.TIM , s , 1**	**FP#.TEM , °C , 1**
MI	**MI.VOL , mL , 4**	**MI.MEA , µA , 1**	**MI.TIM , s , 1**	**MI.TEM , °C , 1**
MA	**MA.VOL , mL , 4**	**MA.MEA , µA , 1**	**MA.TIM, s, 1**	**MA.TEM , °C , 1**

Table 15 Command KFC

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EP	**EP.MEA , mV , 1**	**EP.QTY , µg , 1**	**EP.TIM , s , 1**	**EP.TEM , °C , 1**
DRI	**DRI , µg/min , 1**			
DTI	**DTI , s , 1**			
FP#	**FP#.MEA , mV , 1**	**FP#.QTY , µg , 1**	**FP#.TIM , s , 1**	**FP#.TEM , °C , 1**

Table 16 Command BRC

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EP	**EP.MEA , mV , 1**	**EP.QTY , µg , 1**	**EP.TIM , s , 1**	**EP.TEM , °C , 1**
DRI	**DRI , µg/min , 1**			
DTI	**DTI , s , 1**			
FP#	**FP#.MEA , mV , 1**	**FP#.QTY , µg , 1**	**FP#.TIM , s , 1**	**FP#.TEM , °C , 1**

Table 17 Command STAT pH

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
MR	**MR.MRT , mL/min , 4**	**MR.MRS , mL/min , 4**	**MR.MRC , "leer" , 3**	
RE#	**RE#.DRT , mL/min , 4**	**RE#.DRS , mL/min , 4**	**RE#.DRC , "empty" , 3**	
FP#	**FP#.VOL , mL , 4**	**FP#.MEA , pH , 3**	**FP#.TIM , s , 1**	**FP#.TEM , °C , 1**
MI	**MI.VOL , mL , 4**	**MI.MEA , pH , 3**	**MI.TIM , s , 1**	**MI.TEM , °C , 1**
MA	**MA.VOL , mL , 4**	**MA.MEA , pH , 3**	**MA.TIM, s, 1**	**MA.TEM , °C , 1**

Table 18 Command STAT U

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
MR	**MR.MRT , mL/min , 4**	**MR.MRS , mL/min , 4**	**MR.MRC , "leer" , 3**	
RE#	**RE#.DRT , mL/min , 4**	**RE#.DRS , mL/min , 4**	**RE#.DRC , "empty" , 3**	
FP#	**FP#.VOL , mL , 4**	**FP#.MEA , mV , 3**	**FP#.TIM , s , 1**	**FP#.TEM , °C , 1**
MI	**MI.VOL , mL , 4**	**MI.MEA , mV , 3**	**MI.TIM , s , 1**	**MI.TEM , °C , 1**
MA	**MA.VOL , mL , 4**	**MA.MEA , mV , 3**	**MA.TIM, s, 1**	**MA.TEM , °C , 1**

Table 19 Command MEAS pH

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EME	**EME , pH , 3**			
ETE	**ETE , °C , 1**			

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
FP#	**FP#.MEA** , **pH** , **3**	**FP#.TIM** , **s** , **1**	**FP#.TEM** , **°C** , **1**	
MI	**MI.MEA** , **pH** , **3**	**MI.TIM** , **s** , **1**	**MI.TEM** , **°C** , **1**	
MA	**MA.MEA** , **pH** , **3**	**MA.TIM**, **s**, **1**	**MA.TEM** , **°C** , **1**	
BP#	**BP#.MEA** , **pH** , **3**	**BP#.TIM** , **s** , **1**	**BP#.TEM** , **°C** , **1**	

Table 20 Command MEAS U

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EME	**EME** , **mV** , **1**			
ETE	**ETE** , **°C** , **1**			
FP#	**FP#.MEA** , **mV** , **1**	**FP#.TIM** , **s** , **1**	**FP#.TEM** , **°C** , **1**	
MI	**MI.MEA** , **mV** , **1**	**MI.TIM** , **s** , **1**	**MI.TEM** , **°C** , **1**	
MA	**MA.MEA** , **mV** , **1**	**MA.TIM**, **s**, **1**	**MA.TEM** , **°C** , **1**	
BP#	**BP#.MEA** , **mV** , **1**	**BP#.TIM** , **s** , **1**	**BP#.TEM** , **°C** , **1**	

Table 21 Command MEAS Ipol

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EME	**EME** , **mV** , **1**			
ETE	**ETE** , **°C** , **1**			
FP#	**FP#.MEA** , **mV** , **1**	**FP#.TIM** , **s** , **1**	**FP#.TEM** , **°C** , **1**	
MI	**MI.MEA** , **mV** , **1**	**MI.TIM** , **s** , **1**	**MI.TEM** , **°C** , **1**	
MA	**MA.MEA** , **mV** , **1**	**MA.TIM**, **s**, **1**	**MA.TEM** , **°C** , **1**	
BP#	**BP#.MEA** , **mV** , **1**	**BP#.TIM** , **s** , **1**	**BP#.TEM** , **°C** , **1**	

Table 22 Command MEAS Upol

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EME	**EME** , **µA** , **1**			
ETE	**ETE** , **°C** , **1**			
FP#	**FP#.MEA** , **µA** , **1**	**FP#.TIM** , **s** , **1**	**FP#.TEM** , **°C** , **1**	
MI	**MI.MEA** , **µA** , **1**	**MI.TIM** , **s** , **1**	**MI.TEM** , **°C** , **1**	
MA	**MA.MEA** , **µA** , **1**	**MA.TIM**, **s**, **1**	**MA.TEM** , **°C** , **1**	
BP#	**BP#.MEA** , **µA** , **1**	**BP#.TIM** , **s** , **1**	**BP#.TEM** , **°C** , **1**	

Table 23 Command MEAS T

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EME	**EME** , **°C** , **1**			

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
FP#	**FP#.MEA** , **°C** , **3**	**FP#.TIM** , **s** , **1**		
MI	**MI.MEA** , **°C** , **1**	**MI.TIM** , **s** , **1**		
MA	**MA.MEA** , **°C** , **1**	**MA.TIM**, **s**, **1**		
BP#	**BP#.MEA** , **°C** , **1**	**BP#.TIM** , **s** , **1**		

Table 24 Command MEAS T/Flow

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EME	**EME** , **°C** , **1**			
MI	**MI.MEA** , **°C** , **1**	**MI.GFL** , **mL/min** , **1**	**MI.TIM** , **s** , **1**	
MA	**MA.MEA** , **°C** , **3**	**MA.GFL** , **mL/min** , **1**	**MA.TIM**, **s**, **1**	

Table 25 Command MEAS Conc

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EME	**EME** , **"selected unit"** , **3**			
ETE	**ETE** , **°C** , **1**			

Table 26 Command MEAS Cond

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
EME	**EME** , **mS/cm** , **2**	**RTE** , **°C** , **1**		
ETE	**ETE** , **°C** , **1**			
FP#	**FP#.MEA** , **mS/cm** , **2**	**FP#.TIM** , **s** , **1**	**FP#.TEM** , **°C** , **1**	
MI	**MI.MEA** , **mS/cm** , **2**	**MI.TIM** , **s** , **1**	**MI.TEM** , **°C** , **1**	
MA	**MA.MEA** , **mS/cm** , **2**	**MA.TIM**, **s**, **1**	**MA.TEM** , **°C** , **1**	
BP#	**BP#.MEA** , **mS/cm** , **2**	**BP#.TIM** , **s** , **1**	**BP#.TEM** , **°C** , **1**	

Table 27 Command CAL LOOP pH

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
SLO	**SLO** , **%** , **1**			
ENP	**ENP** , **–** , **3**			

Table 28 Command CAL LOOP Conc

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
SLO	**SLO** , **mV** , **1**			
ENP	**ENP** , **–** , **3**			
BLV	**BLV** , **"unit from configuration"** , **2**			

Table 29 Befehl CAL Cond

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
CLC	**CLC** , **/cm** , **3**			
RTE	**RTE** , **°C** , **1**			

Table 30 Command STDADD

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
SLO	**SLO** , **mV** , **1**			
ENP	**ENP** , **mV** , **1**			
RES	**RES** , **"selected unit"** , **1**			
VAR	**VAR** , **"leer"** , **3**			

Table 31 Command DOS pH

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
MR	**MR.MRT** , **mL/min** , **4**	**MR.MRS** , **mL/min** , **4**	**MR.MRC** , **"leer"** , **3**	

Table 32 Command DOS U

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
MR	**MR.MRT** , **mL/min** , **4**	**MR.MRS** , **mL/min** , **4**	**MR.MRC** , **"leer"** , **3**	

4.7.4 Results - Calculation

Tab: **Database** ▸ **Results** ▸ **Command name**

For each calculation command the results and (if existent and desired) the corresponding statistical evaluations are displayed on a separate tab **Calculation_#**. The sequence of the shown results corresponds to that defined in the calculation command. The display of the statistical evaluations can be selected in the dialog window **Properties result window**

For every single result a maximum of the following information is displayed:

Result "Result name"

Result "Result name"

Display of the result with variable name.

Note

Only the last results having been calculated will be shown. For example, if there are several commands that generate a result with the same name, then the corresponding result data will be shown only for that command that was the last to calculate the result. Nothing will be shown for the other commands.

"Result"

Shows the result name and result value with the defined number of decimal places and units.

Note

If a result value is monitored and lies within the limit value defined in the CALC command then the text will be shown in green, if it lies outside the limits it will be shown in red text color.

Mean value:

Shows the mean value for statistically evaluated results.

s(abs):

Shows the absolute standard deviation for statistically evaluated results.

s(rel):

Shows the relative standard deviation for statistically evaluated results.

Minimum:

Shows the minimum value for statistically evaluated results.

Maximum:

Shows the maximum value for statistically evaluated results.

n:

Shows the number of measurements for statistically evaluated results.

Assignment:

Assigns the result to one of the result columns **RS01**...**RS25** in the **Determination overview**.

Formula:

Shows the formula used for calculating the result.

'Variable name':

'Displays the variables used in the formula.

> **Note**
>
> Variables that have not been created during the determination are not displayed and lead to invalid results.

4.7.5 Results - Properties

Dialog window **Database** ▸ **View** ▸ **Properties** ▸ **Properties** ▸ **Properties result window**

In the dialog window **Properties result window** the information to be displayed in the result window can be selected.

Display for results overview

Selection of the information to be displayed on the tab **Results overview**.

Results

on | off (Default value: **on**)

Shows all results.

Statistics

on | off (Default value: **off**)

Shows the statistics results.

Display for calculation commands

Selection of the information to be displayed on the tabs **Calculation_#**.

Results

on | off (Default value: **on**)

Shows the results defined in the calculation command.

Statistics

on | off (Default value: **off**)

Shows the statistics results.

Assignment

on | off (Default value: **on**)

Shows the assignment.

Formula

on | off (Default value: **on**)

Shows the calculation formula.

Variables

on | off (Default value: **off**)

Displays the variables used in the formula.

4.8 Subwindow curves

4.8.1 Curves - General

Dialog window: **Database** ▸ **Curves**

Subwindow curves

The subwindows **Curves 1...5** are subwindows in the program part **Database**, in which the measuring points generated by the measuring commands for the focused determination in the **Determination table** are shown as a graph. When navigating in the determination overview this data will be updated automatically (with a certain delay).

The subwindows **Curves 1...5** can be switched on in the program part **Database** during the definition of the layout and thus made visible. They can be enlarged and reduced as required; they can also be maximized.

Tabs

In the curve window a tab with the corresponding command name and the run index (e.g. **Chloride.1**) is provided for each execution of a measuring command; their sequence is determined by the method.

Show curves

The curves of the selected determination are shown on the tabs with the properties defined per window and per command type. The command type (e.g. **DET pH**) is shown above the left-hand y axis.

Curves can be **zoomed** as often as required by spanning a section of the curve display with the left mouse button pressed down. Zooming can be

undone with a double-click on the section of the graph or with the context-sensitive menu command **Show All**.

Note

When a new determination is selected the complete curve is always shown, i.e. the zoom range is not retained when the determination is changed.

Curves can be copied into the clipboard with the context-sensitive menu command **Copy graphics**.

4.8.2 Curves - Measuring point list

Dialog window: **Database** ▸ **Curves**

With the context-sensitive menu item **Measuring point list...** in the curve window the dialog window **Measuring point list - 'Command name.#'** opens for showing the measuring point list for the selected curve.

The display of the measuring points in the table can be defined per window and per command type in the **Properties - Curve #**

4.8.3 Properties

4.8.3.1 Curve properties - Overview

Dialog window: **Database** ▸ **Curves** ▸ **Properties curves #**

The properties for the display of curves can be set on the following 5 tabs:

- *x axis*
  Parameters for the graphical display of the curves on the x axis.
- *y1 axis*
  Parameters for the graphical display of the curves on the y1 axis (left-hand y axis).
- *y2 axis*
  Parameters for the graphical display of the curves on the y2 axis (right-hand y axis).
- *Options*
  Options for graphical display of curves.
- *Measuring point list*
  Parameters for showing the measuring point list.

4.8.3.2 Curve properties - x axis

Dialog window: **Database** ▸ **Curves** ▸ **Properties curves #** ▸ **x axis**

Parameters for the graphical display of the curves on the x axis.

Command type

Selection of the command type for which the curve properties are to be defined. The curve properties defined for each command type are saved per curve window and per client.

Selection	**DET** | **MET** | **SET** | **KFT** | **KFC** | **BRC** | **STAT** | **MEAS** | **DOS**
Default value	**DET**

Note

When the dialog window is opened, those **Command type** will be selected as standard which applies for the curve shown in the curve window.

Autoscaling

on | off (Default value: **on**)

If this option is switched on then all axes in the curve window will be scaled automatically. In this case the fields **Start value** and **End value** cannot be edited.

Size

Selection of the quantity to be shown on the x axis.

For DET commands

Selection	**Volume [mL]** | **Measured value** | **ERC** | **Time [s]** | **Temperature [°C]** | **Calculated 1…3** | **External 1…3**
Default value	**Volume [mL]**

For MET commands

Selection	**Volume [mL]** | **Measured value** | **dMW** | **Time [s]** | **Temperature [°C]** | **Calculated 1…3** | **External 1…3**
Default value	**Volume [mL]**

For SET, STAT, DOS and KFT commands

Selection	**Time [s]** | **Measured value** | **Volume [mL]** | **dV/dt [µL/min]** | **Temperature [°C]** | **Calculated 1…3** | **External 1…3**
Default value	**Time [s]**

For KFC commands

Selection	**Time [s]** | **Measured value** | **Amount [µg]** | **Charge [mAs]** | **Drift [µg/min]** | **dV/dt [µ/min]** | **Ugen** | **Igen [mA]** | **Calculated 1…3** | **External 1…3**
Default value	**Time [s]**

For BRC commands

Selection	**Time [s]** | **Measured value** | **Amount [µg]** | **Charge [mAs]** | **Drift [µg/min]** | **dV/dt [µ/min]** | **Ugen** | **Igen [mA]** | **Calculated 1…3** | **External 1…3**
Default value	**Time [s]**

For MEAS commands

Selection	**Time [s]** | **Measured value** | **dMW/dt** | **Temperature [°C]** | **Calculated 1…3** | **External 1…3**
Default value	**Time [s]**

Label

Freely definable axis label for the x axis. With **auto** the designation from the field **Size** will be used.

Selection	**50 characters** | **auto**
Default value	**auto**

Scaling

Start value

Initial value for scaling the x axis.

Only editable when autoscaling is disabled.

Range	**-1.00E+12 ... +1.00E+12**
Default value	**0**

End value

End value for scaling the x axis.

Only editable when autoscaling is disabled.

Range	**-1.00E+12 ... +1.00E+12**
Default value	**1000**

4.8.3.3 Curve properties - y1 axis

Dialog window: **Database** ▸ **Curves** ▸ **Properties curves #** ▸ **y1 axis**

Parameters for the graphical display of the curves on the y1 axis (left-hand y axis).

Command type

Selection of the command type for which the curve properties are to be defined. The curve properties defined for each command type are saved per curve window and per client.

Selection	**DET** | **MET** | **SET** | **KFT** | **KFC** | **BRC** | **STAT** | **MEAS** | **DOS**
Default value	**DET**

Note

When the dialog window is opened, those **Command type** will be selected as standard which applies for the curve shown in the curve window.

Autoscaling

on | off (Default value: **on**)

If this option is switched on then all axes in the curve window will be scaled automatically. In this case the fields **Start value** and **End value** cannot be edited.

Size

Selection of the quantity to be shown on the y1 axis.

For DET commands

Selection	**Volume [mL]** | **Measured value** | **ERC** | **Time [s]** | **Temperature [°C]** | **Calculated 1…3** | **External 1…3**
Default value	**Measured value**

For MET commands

Selection	**Volume [mL]** | **Measured value** | **dMW** | **Time [s]** | **Temperature [°C]** | **Calculated 1…3** | **External 1…3**
Default value	**Measured value**

For SET, STAT, DOS and KFT commands

Selection	**Time [s]** | **Measured value** | **Volume [mL]** | **dV/dt [µL/min]** | **Temperature [°C]** | **Calculated 1…3** | **External 1…3**
Default value	**Volume [mL]**

For KFC commands

Selection	**Time [s]** | **Measured value** | **Amount [µg]** | **Charge [mAs]** | **Drift [µg/min]** | **dV/dt [µ/min]** | **Ugen** | **Igen [mA]** | **Calculated 1…3** | **External 1…3**
Default value	**Amount [µg]**

For BRC commands

Selection	**Time [s]** | **Measured value** | **Amount [µg]** | **Charge [mAs]** | **Drift [µg/min]** | **dV/dt [µ/min]** | **Ugen** | **Igen [mA]** | **Calculated 1…3** | **External 1…3**
Default value	**Amount [µg]**

For MEAS commands

Selection	**Time [s]** | **Measured value** | **dMW/dt** | **Temperature [°C]** | **Calculated 1…3** | **External 1…3**
Default value	**Measured value**

Label

Freely definable axis label for the y1 axis. With **auto** the designation from the field **Size** will be used.

Selection	**50 characters** | **auto**
Default value	**auto**

Scaling

Start value

Initial value for scaling the y1 axis.

Only editable when autoscaling is disabled.

Range	**-1.00E+12 ... +1.00E+12**
Default value	**0**

End value

End value for scaling the y1 axis.

Only editable when autoscaling is disabled.

Range	**-1.00E+12 ... +1.00E+12**
Default value	**1000**

Curve

Curve color

Selection of the color for the curve line.

Selection	**13 colors** | **blue**
Default value	**blue**

Symbol

Selection of the symbol for the display of the individual measuring points.

Selection	● | ✕ | ✱ | ■ | ▲ | **No symbol**
Default value	**No symbol**

No symbol
Measuring points are not shown.

Note

With curves, for which the distance between to measuring points is smaller than 5 pixels, the separate measuring points are not displayed anymore, even if a symbol has been selected. In this case, the graphics window can eventually be enlarged in order to display the symbols again.

Symbol color

Selection of the color for the measuring point symbol.

Selection	**13 colors** | **blue**
Default value	**blue**

Smoothing

Smoothing

on | off (Default value: **on**)

Switches smoothing on/off for the curve.

Smoothing factor x axis

Factor for smoothing on the x axis.

Range	**0.01 ... 1000**
Default value	**0.01**

Smoothing factor y-axis

Factor for smoothing on the y axis.

Range	**0.01 ... 1000**
Default value	**0.01**

Show with original curve

on | off (Default value: **off**)

If this check box is activated, then the original curve (solid line, same color) will be shown in addition to the smoothed curve (dotted line).

4.8.3.4 Curve properties - y2 axis

Dialog window: **Database** ▸ **Curves** ▸ **Properties curves #** ▸ **y2 axis**

Parameters for the graphical display of the curves on the y2 axis (right-hand y axis).

Command type

Selection of the command type for which the curve properties are to be defined. The curve properties defined for each command type are saved per curve window and per client.

Selection	**DET** | **MET** | **SET** | **KFT** | **KFC** | **BRC** | **STAT** | **MEAS** | **DOS**
Default value	**DET**

Note

When the dialog window is opened, those **Command type** will be selected as standard which applies for the curve shown in the curve window.

Autoscaling

on | off (Default value: **on**)

If this option is switched on then all axes in the curve window will be scaled automatically. In this case the fields **Start value** and **End value** cannot be edited.

Size

Selection of the quantity to be shown on the y2 axis.

For DET commands

Selection	**Volume [mL]** | **Measured value** | **ERC** | **Time [s]** | **Temperature [°C]** | **Calculated 1…3** | **External 1…3** | **off**
Default value	**off**

For MET commands

Selection	**Volume [mL]** | **Measured value** | **dMW** | **Time [s]** | **Temperature [°C]** | **Calculated 1…3** | **External 1…3** | **off**
Default value	**off**

For SET, STAT, DOS and KFT commands

Selection	**Time [s]** | **Measured value** | **Volume [mL]** | **dV/dt [µL/min]** | **Temperature [°C]** | **Calculated 1…3** | **External 1…3** | **off**
Default value	**off**

For KFC commands

Selection	**Time [s]** | **Measured value** | **Charge [mAs]** | **Amount [µg]** | **Drift [µg/min]** | **Ugen** | **Igen [mA]** | **Calculated 1…3** | **External 1…3** | **off**
Default value	**off**

For BRC commands

Selection	**Time [s]** | **Measured value** | **Amount [mAs]** | **Water [µg]** | **Drift [µg/min]** | **Ugen** | **Igen [mA]** | **Calculated 1…3** | **External 1…3** | **off**
Default value	**off**

Label

Freely definable axis label for the y1 axis. With **auto** the designation from the field **Size** will be used.

Selection	**50 characters** | **auto**
Default value	**auto**

Curve

Curve color

Selection of the color for the curve line.

Selection	**13 colors** | **pink**
Default value	**pink**

Symbol

Selection of the symbol for the display of the individual measuring points.

Selection	**5 symbols** | **No symbol**
Default value	**No symbol**

No symbol
Measuring points are not shown.

Note

With curves, for which the distance between to measuring points is smaller than 5 pixels, the separate measuring points are not displayed anymore, even if a symbol has been selected. In this case, the graphics window can eventually be enlarged in order to display the symbols again.

Symbol color

Selection of the color for the measuring point symbol.

Selection	**13 colors** | **pink**
Default value	**pink**

Smoothing

Smoothing

on | off (Default value: **on**)

Enables/disables the smoothing for curves.

Smoothing factor x axis

Factor for smoothing on the x axis.

Range	**0.01 ... 1000**
Default value	**0.01**

Smoothing factor y-axis

Factor for smoothing on the y axis.

Range	**0.01 ... 1000**
Default value	**0.01**

4.8.3.5 Curve properties - Options

Dialog window: **Database** ▸ **Curves** ▸ **Properties curves #** ▸ **Options**

Options for graphical display of curves.

Command type

Selection of the command type for which the curve properties are to be defined. The curve properties defined for each command type are saved per curve window and per client.

Selection	**DET** | **MET** | **SET** | **KFT** | **KFC** | **BRC** | **STAT** | **MEAS** | **DOS**
Default value	**DET**

Note

When the dialog window is opened, those **Command type** will be selected as standard which applies for the curve shown in the curve window.

Autoscaling

on | off (Default value: **on**)

If this option is switched on then all axes in the curve window will be scaled automatically. In this case the fields **Start value** and **End value** cannot be edited.

Display grid

Display grid

on | off (Default value: **off**)

If this check box is actjvated then a grid will be shown against the background.

Grid type

Selection of the type of grid line.

Selection	**Line types** | **dotted**
Default value	**dotted**

Grid color

Selection of the grid line color.

Selection	**13 colors** | **gray**
Default value	**gray**

Background

Background color

Selection of the color for the curve background.

Selection	**13 colors** | **white**
Default value	**white**

Show endpoints

Show endpoints

on | off (Default value: **on**)

If this check box is activated then the endpoints found will be shown on the curve by the symbol □ and labeled with **EP#** (potentiometric endpoint), **BP#** (break point), **FP#** (fixed endpoint), **HP** (HNP), **MI** (minimum value) or **MA** (maximum value).

Automatic EPs

Selection of the color for automatically set endpoints.

Selection	**13 colors** | **black**
Default value	**black**

Manual EPs

Selects the color for manually set endpoints.

Selection	**13 colors** | **pink**
Default value	**pink**

Show evaluation lines

Show evaluation lines

on | off (Default value: **off**)

If this check box is activated the evaluation lines (tangents, auxiliary lines) will be shown.

Tangents

Selection of the color for the tangents and auxiliary lines.

Selection	**13 colors** | **light green**
Default value	**light green**

Auxiliary lines

Selection of the color for the auxiliary lines.

Selection	**13 colors** | **blue**
Default value	**blue**

4.8.3.6 Curve properties - Measuring point list

Dialog window: **Database** ▸ **Curves** ▸ **Properties curves #** ▸ **Options**

Parameters for showing the measuring point list.

Command type

Selection of the command type for which the curve properties are to be defined. The curve properties defined for each command type are saved per curve window and per client.

Selection	**DET** | **MET** | **SET** | **KFT** | **KFC** | **BRC** | **STAT** | **MEAS** | **DOS**
Default value	**DET**

Note

When the dialog window is opened, those **Command type** will be selected as standard which applies for the curve shown in the curve window.

Autoscaling

on | off (Default value: **on**)

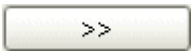
If this option is switched on then all axes in the curve window will be scaled automatically. In this case the fields **Start value** and **End value** cannot be edited.

Available columns

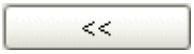
Shows all fields that can be displayed as columns in the measuring point list.

Displayed columns

Shows all fields that will be shown as columns in the measuring point list.



Adds the selected column to the measuring point list.



Removes the selected column from the measuring point list.

Modifies the sequence of displayed columns by moving the selected column up and down.

5 How to proceed?

5.1 Backup

5.1.1 Backing up database

How to proceed?

General

In **tiBase** , **determination databases** that in contrast to the **configuration database** can be generated by the user and contain the determination data are referred to as databases. Included among such determination data is the method data used for the determination, the measuring data generated during the determination and the results calculated from it.

In local server systems (**tiBase full**) the databases are stored on the drives administered by the computer and are only available to those users registered on that computer who have the appropriate access rights. In client/server systems (**tiBase** multi) the databases are stored on drives administered centrally by the server and are available globally throughout the entire Client/Server system, i.e. all users with the appropriate access rights can use these databases.

Note

Each determination database has to be backed up separately. Afterwards, it is recommended that all backed-up files be copied to an external directory or to a CD/DVD.

Backing up database manually

1. Select program part **Database**.
2. Click on the symbol or menu item **File** ▸ **Database manager…**.

   The dialog window **Database manager** opens.
3. Select database.
4. Click on **[Backup]** in the dialog window **Database manager**.

   The dialog window **Backup database 'Database name'** is opened.

5 Select the directory for the backup in the field **Backup directory**.

6 Select or enter the name for the **Backup file**. If an existing backup file is selected it will be overwritten.

> **Note**
>
> If the backup directory is on a network drive, the backup date should be added manually to the **Backup name** field because the backup date information is not available when restoring.

7 Click on **[Start]**.

The manual backup of the database is started and the database is backed up to the selected directory.

Backing up database automatically

1 Select program part **Database**.

2 Click on the symbol or menu item **File ▸ Database manager…**.

The dialog window **Database manager** opens.

3 Select desired database and click on **[Properties]**.

The dialog window **Properties - Database - 'Database name'** opens for editing the database properties.

4 On the tab **General** enter a comment on the database in the field **Comment**.

5 On the tab **Backup** enable the check box **Backup monitoring**.

6 Enter **Interval** for backup monitoring or date for the next backup in the field **Next backup**.

7 Activate the **Start backup automatically** check box.

8 Select the directory for the backup in the field **Backup directory**.

9 Click on **[OK]**.

The dialog window **Properties - Database** is closed and the database will be backed up to the selected directory at the desired time.

5.1.2 Restoring database

How to proceed?

1 Select program part **Database**.

2 Click on the symbol or menu item **File** ▸ **Database manager…**.

The **Database manager** window opens.

3 Click on **[Restore]** in the **Database manager** dialog window.

The **Restore databases** dialog window opens.

4 Select the directory in the **Backup directory** in which the desired database was backed up.

5 Select or enter the name for the desired backup file in the **Backup name** list box.

6 Enter the name under **Save as** under which the database is to be restored.

7 Click on **[Start]**.

The database restoring is started.

Note

Existing databases cannot be overwritten, i.e. they must first be deleted so that the database can be recovered under its old name.

5.1.3 Backing up configuration data

How to proceed?

General

The configuration data in **tiBase** is saved in the **Configuration database**. Included among the configuration data are settings for the data import **Security settings** *(see Chapter 3.2.2.1, page 82)*, **User adminis-**

tration *(see Chapter 3.2.1.1, page 74)*, **Program administration***(see Chapter 3.2.3.1, page 91)* and templates.

For local server systems (**tiBase full**) the configuration database is located in the program folder of the computer on which the program has been installed. In Client/Server systems (**tiBase multi**) the configuration database is stored centrally on the server and saves and contains all the configuration data of all computers (clients) that are connected to this server.

Note

It is strongly recommended that the configuration database be backed up periodically.

Backing up configuration data manually

1. Select program part **Configuration**.
2. Click on the menu item **File** ▸ **Backup** ▸ **Manually**.

   The dialog window **Backup configuration data manually** opens.
3. Select the directory for the backup in the field **Backup directory**.
4. Select or enter a new name for the backup file in the **Backup name** list box. If an existing backup file is selected it will be overwritten.

   Note

   If the backup directory is on a network drive, the backup date should be added manually to the **Backup name** because the backup date information is not available when the directory is restored.
5. Click on **[Start]**.

   The manual backup is started and the configuration database is backed up to the selected directory.

Backing up configuration data automatically

1. Select program part **Configuration**.

2 Click on menu item **File** ▸ **Backup** ▸ **Automatically**.

The dialog window **Backup configuration data automatically** opens.

3 Activate the **Automatic backup** check box.

4 Enter **Interval** for backup monitoring or date for the next backup in the field **Next backup**.

5 Select the directory for the backup in the field **Backup directory**.

6 Click on **[OK]**.

The dialog window **Backup configuration data automatically** is closed and the configuration database will be backed up to the selected directory at the desired time.

5.1.4 Restoring configuration data

How to proceed?

Exit tiBase full

1 Exit **tiBase** .

2 Start the file **ConfigRestore.exe** in the program directory **...\tiBase \bin**.

The dialog window **Restore configuration data** opens.

3 Select the directory in the **Backup directory** field in which the desired database was backed up.

4 Select or enter the name for the desired backup file in the **Backup name** list box.

5 Click on **[Start]**.

The restoring of the configuration database is started.

tiBase multi

1 Make sure that **tiBase** is closed on all clients connected to the server and on the server itself.

2 Start the file **ConfigRestore.exe** in the program directory**...\TiBaser \bin** on the server.

The dialog window **Restore configuration data** opens.

3 Select the directory in the **Backup directory** field in which the configuration database was backed up.

4 Select or enter the name for the desired backup file in the **Backup name** list box.

5 Click on **[Start]**.

The restoring of the configuration database is started.

5.2 Determinations

5.2.1 Search for determinations

How to proceed?

1 Select program part **Database**.

2 Click on the symbol or the menu item **File ▸ Open...**.

The dialog window **Open database** opens.

3 Select desired database or enter name in the field **Database name**.

4 Click on **[Open]**.

The selected database opens and its data sets are displayed in the **Determination overview**.

5 Click on the symbol or the menu item **Determination ▸ Find...**.

The dialog window **Search - Database 'Database name'** is opened.

6 Enter or select desired search terms and search options.

7 Click on **[Search next]**.

The next determination containing the search term is marked in the **Determination overview**.

5.2.2 Filter determinations

How to proceed?

Opening the database

1. Select program part **Database**.
2. Click on the symbol or the menu item **File** ▸ **Open...**.

   The dialog window **Open database** opens.
3. Select desired database or enter name in the field **Database name**.
4. Click on **[Open]**.

   The selected database opens and its data sets are displayed in the **Determination overview**.

Filtering can now be done via quick filter or special filter in the **Determination overview** window.

Quick filter

1. Click on the symbol or on **Filter** ▸ **Quick filter** in the context menu.

   After this function has been selected, the field in which the cursor is located will have a yellow background when navigating in the determination table.
2. Double click on the desired field with the left-hand mouse key.

   The contents of the field selected in the table will be set as a filter condition and this filter will be applied directly to the table.

Note

The quick filter can be used again within the filtered table, so that the number of entries can be limited step by step.

Defining and using special filter

1. Click on the symbol or on **Filter ▸ Special filter** in the context menu

   The dialog window **Special filter** opens for defining user-specific filters.

2. Use the **Edit ▸ Edit line** menu item to open the dialog window **Edit filter criterion New filter**.

3. Define filter criteria.

4. Click on **[Save filter]**.

5. Click on **[Apply filter]**.

   The table will be filtered.

Using special filter

1. In the list box **Filter**, select the desired special filter.

   The table will be filtered.

5.2.3 Sign determination

How to proceed?

Selecting determination

1. Select program part **Database**.

2. Click on the symbol or the menu item **File ▸ Open...**.

   The dialog window **Open database** opens.

3. Select desired database or enter name in the field **Database name**.

4. Click on **[Open]**.

   The selected database opens and its data sets are displayed in the **Determination overview**.

5 Select desired determination.

Signature 1

Note

Determinations can only be signed at level 1 if the user belongs to a user group with the corresponding authorization *(see Chapter 3.2.1.2.3, page 77)*.

1 Click on the symbol or menu item **Determinations ▸ Sign ▸ Signature 1…**.

The window **Signature Level 1** opens. If the selected determination can be signed, **Signature possible** is displayed in the field **Info**.

2 Enter or select **User**, **Password**, **Reason** and **Comment**.

3 Click on **[Sign]**.

The selected determination will be signed on level 1.

Note

Determinations that have been signed at level 1 can be reprocessed and deleted. If the modified determination is saved as a new determination version then all existing signatures will be deleted automatically, i.e. the determination must be signed again.

Signature 2

Note

Determinations can only be signed at level 2 if the user belongs to a user group with the corresponding authorization *(see Chapter 3.2.1.2.3, page 77)*.

1 Click on the symbol or menu item **Determinations ▸ Sign ▸ Signature 2…**.

The window **Signature Level 2** opens. If the selected determination can be signed, **Signature possible** is displayed in the field **Info**.

2 Enter or select **User**, **Password**, **Reason** and **Comment** and click on **[Sign]**.

The selected determination will be signed on level 2.

Note

Determinations that can be signed at level 2 are **blocked**, i.e. they can neither be reprocessed nor deleted. In order to be able to edit such determinations again the signatures at level 2 must first be deleted.

5.2.4 Export determinations

How to proceed?

Defining export template

1 Select program part **Database**.

2 Click on menu item **Tools** ▸ **Templates** ▸ **Export templates…**.

The window **Export templates** opens.

3 Click on **[New]**.

The window **Export templates – 'New file'** opens.

4 Define the properties of the new export template.

5 Click on **[OK]**.

The dialog window is closed.

6 Click on **[Close]**.

The dialog window **Export templates** is closed.

Selecting determinations

1 Select program part **Database**.

2 Click on the symbol or the menu item **File ▸ Open...**.

The dialog window **Open database** opens.

3 Select desired database or enter name in the field **Database name**.

4 Click on **[Open]**.

The selected database opens and its data sets are displayed in the **Determination overview**.

5 Select desired determinations.

Export determinations

1 Click on the menu item **Determinations ▸ Export...**.

The window **Export determinations** opens.

2 In the field **Selection** select the desired option (**All records** or **Selected records**).

3 In the list box **Export template**, select an export template.

4 Click on **[OK]**.

The selected determinations are exported into the directory defined in the export template.

5.2.5 Import determinations

How to proceed?

1 Select program part **Database**.

2 Click on the symbol or the menu item **File ▸ Open...**.

The dialog window **Open database** opens.

3 Select desired database or enter name in the field **Database name**.

4 Click on **[Open]**.

The selected database opens and its data sets are displayed in the **Determination overview**.

5 Click on the menu item **Determinations ▸ Import....** or the symbol .

The window **Import determinations** opens.

6 Select desired determinations.

7 Click on **[Open]**.

The selected determinations are imported into the open database.

Note

Only determinations in the file format ***.tdet** and ***.txt** can be imported.

5.2.6 Deleting determinations

How to proceed?

1 Select program part **Database**.

2 Click on the symbol or the menu item **File ▸ Open...**.

The dialog window **Open database** opens.

3 Select desired database or enter name in the field **Database name**.

4 Click on **[Open]**.

The selected database opens and its data sets are displayed in the **Determination overview**.

5 Select desired determinations.

6 Click on the symbol or the menu item **Determination ▸ Delete**.

7 Confirm deleting.

The selected determinations with all **Determination versions** are deleted.

Note

If the option **Comment on modification of determinations** in the **Security settings** is enabled, then the window **Modification comment determination** will appear before the modification is saved.

5.2.7 Make the determination version current

How to proceed?

1. Select program part **Database**.
2. Click on the symbol or the menu item **File ▸ Open...**.

   The dialog window **Open database** opens.
3. Select desired database or enter name in the field **Database name**.
4. Click on **[Open]**.

   The selected database opens and its data sets are displayed in the **Determination overview**.
5. Select desired determination.
6. Click on the symbol or menu item **Determinations ▸ Show history...**.

   Only the currently selected determination in the **determination table** as well as all the previous versions of this determination will be shown.
7. Select desired determination that is to be made current.
8. Click on the symbol or the menu item **Determination ▸ Make current**.

   The determination version selected in the determination table will again be made the current determination version. This creates a new determination, the version number of which is increased by **+1** compared with the last version to have been saved.

5.2.8 Reprocessing determinations

How to proceed?

Note

Determinations that have a signature at level 2 cannot be reprocessed.

1. Select program part **Database**.
2. Click on the symbol or the menu item **File** ▸ **Open...**.
3. Select desired database or enter name in the field **Database name**.

   The selected database opens and its data sets are displayed in the **Determination overview**.
4. Select desired determinations.
5. Click on the symbol or the menu item **Determination** ▸ **Reprocess...**.

   The dialog window **Reprocessing** opens. Displayed is the first of the selected determinations.

Modify variables

1. Select the **Variables** tab.
2. Select the desired variable in the table.
3. Click on **[Modify]**.

   The dialog window **Modify variable** opens..
4. In the field **Value**, enter a new value for the variable.
5. Click on **[OK]**.
6. Click on **[Recalculate]**.

The selected determinations are recalculated. The results of this recalculation are entered automatically in the subwindow **Result view**.

Note

If a variable is modified, then with **[Recalculate]** all the selected determinations will be recalculated with the new value. If one variable is not modified then when several determinations are recalculated the original value of the variable will be used (i.e. variables with the same name but different values will not be overwritten until they are deliberately modified).

7 In the dialog window **Reprocessing** click on **[OK]**.

Each determination that has been modified by reprocessing will be saved as a new version with a version number increased by **+1** and the dialog window **Reprocessing** will be closed. This button is inactive when the recalculation has not yet been triggered and if not all the selected determinations could be reprocessed.

Modify calculation

1 Change to the **Calculations** tab.

2 Click on **[New]**.

The dialog window **Result New result - RSxx** is opened.

3 Modify the new calculation as desired.

4 Click on **[OK]**.

5 Click on **[Recalculate]**.

The selected determinations are recalculated. The results of this recalculation are entered automatically in the subwindow **Result view**.

6 If desired, save the modified method with **[Save as...]** under the same name or under a new name.

If the modified method is saved under the name of an existing method then all the earlier method versions will be deleted and a new version with the number **1** will be generated.

7 In the dialog window **Reprocessing** click on **[OK]**.

Each determination that has been modified by reprocessing will be saved as a new version with a version number increased by **+1** and the dialog window **Reprocessing** will be closed. This button is inactive when the recalculation has not yet been triggered and if not all the selected determinations could be reprocessed.

Modify statistics

Note

The tab **Statistics** will only be shown when the last determination (and only this one) is selected from a set of determinations which, because of the statistics defined in the method, belong together.

1 Change to the **Statistics** tab.

2 In the field **Result name**, select the result whose **Result value** is to be displayed.

3 Select desired determination whose result value(s) should be switched on or off for the statistics.

4 If only the selected result of the determination has to be switched on or off for the statistics, click on **[Result on/off]**.

If the result is switched off, an asterisk (*****) appears behind the result value, is it switched on again, the asterisk disappears.

5 If all results of the selected determination have to be switched on or off for the statistics, click on **[Determination on/off]**.

If the determination is switched off then an asterisk (*****) appears behind all result values in the table and the line is shown as inactive (gray); if it is switched on again then the asterisks will disappear.

Note

If the results of a determination are switched off, the statistics for these results will be switched off when this determination is recalculated, i.e. no data for the mean value and standard deviations will be shown. However, the determinations remain statistically linked to each other so that the results can also be switched on again.

6 Click on **[Recalculate]**.

The selected determinations are recalculated. The results of this recalculation are entered automatically in the subwindow **Result view**.

7 In the dialog window **Reprocessing** click on **[OK]**.

Each determination that has been modified by reprocessing will be saved as a new version with a version number increased by **+1** and the dialog window **Reprocessing** will be closed. This button is inactive when the recalculation has not yet been triggered and if not all the selected determinations could be reprocessed.

Edit curve evaluation

Note

The tab **Curve evaluation** is only shown when a single determination is selected that contains curves that can be evaluated.

1 Change to the tab **Curve evaluation**.

2 In the field **Command name**, select the command whose curve is to be displayed.

3 Click on **[Edit]**.

The dialog window **Curve evaluation** opens for manually reprocessing the curve evaluation.

4 Modify curve evaluation manually.

5 Then close the window with **[OK]**.

6 Click on **[Recalculate]**.

The selected determinations are recalculated. The results of this recalculation are entered automatically in the subwindow **Result view**.

7 In the dialog window **Reprocessing** click on **[OK]**.

Each determination that has been modified by reprocessing will be saved as a new version with a version number increased by **+1** and the subwindow **Reprocessing** will be closed. This button is inactive when the recalculation has not yet been triggered and if not all the selected determinations could have been recalculated.

5.2.9 Printing determination report

How to proceed?

1 Select program part **Database**.

2 Click on the symbol or the menu item **File ▸ Open...**.

The dialog window **Open database** opens.

3 Select desired database or enter name in the field **Database name**.

4 Click on **[Open]**.

The selected database opens and its data sets are displayed in the **Determination overview**. The database name is displayed in the title bar of the program, the number of currently opened databases is displayed in the left upper corner of the database symbol.

Note

A maximum of 4 databases can be opened, but only 2 can be displayed at the same time. Databases that are open at the time the program is ended will be automatically opened the next time the program is started.

5 Select desired determinations.

6 Click on the menu item **File ▸ Print ▸ Report...**.

The dialog window **Report output** opens.

7 Under **Selection**, select desired determinations.

8 Under **Report type**, select the option **Original report** or **Report template**.

9 Under **Output target**, enable the check box **Printer** and/or select **PDF file**.

> **Note**
>
> If several reports are produced simultaneously as a PDF file then an index will be automatically appended to the file name.

10 In the dialog window **Report output**, click on **[OK]**.

The reports of the selected determination are put out.

5.2.10 Printing determination overview

How to proceed?

1 Select program part **Database**.

2 Click on the symbol or the menu item **File ▸ Open...**.

The dialog window **Open database** opens.

3 Select desired database or enter name in the field **Database name**.

4 Click on **[Open]**.

The selected database opens and its data sets are displayed in the **Determination overview**. The database name is displayed in the title bar of the program, the number of currently opened databases is displayed in the left upper corner of the database symbol.

> **Note**
>
> A maximum of 4 databases can be opened, but only 2 can be displayed at the same time. Databases that are open at the time the program is ended will be automatically opened the next time the program is started.

5 Select desired determinations.

6 Click on menu item **File ▸ Print ▸ Determination overview…**.

The dialog window **Print determination overview (PDF)** opens.

7 Under **Selection**, select desired determinations.

8 Under **Orientation**, select the option **Portrait format** or **Landscape format**.

9 Click on **[OK]**.

The determination overview is opened as PDF file.

5.3 Databases

5.3.1 Database in general

In **tiBase** , **determination databases** that in contrast to the **configuration database** can be generated by the user and contain the determination data are referred to as databases. Included among such determination data is the method data used for the determination, the measuring data generated during the determination and the results calculated from it.

In local server systems (**tiBase full**) the databases are stored on the drives administered by the computer and are only available to those users registered on that computer who have the appropriate access rights. In client/server systems (**tiBase** multi) the databases are stored on drives administered centrally by the server and are available globally throughout the entire Client/Server system, i.e. all users with the appropriate access rights can use these databases.

Note

Each determination database has to be backed up separately. Afterwards, it is recommended that all backed-up files be copied to an external directory or to a CD/DVD.

5.3.2 Open database

How to proceed?

1. Select program part **Database**.
2. Click on the symbol or the menu item **File ▸ Open...**.

   The dialog window **Open database** opens.
3. Select desired database or enter name in the field **Database name**.
4. Click on **[Open]**.

   The selected database opens and its data sets are displayed in the **Determination overview**. The database name is displayed in the title bar of the program, the number of currently opened databases is displayed in the left upper corner of the database symbol.

Note

A maximum of 4 databases can be opened, but only 2 can be displayed at the same time. Databases that are open at the time the program is ended will be automatically opened the next time the program is started.

5.3.3 Close database

How to proceed?

Closing single database

1. Select program part **Database**.
2. Click on the symbol or the menu item **File ▸ Close...**.

   The focused database will be closed.

Closing all databases

1. Select program part **Database**.
2. Click on menu item **File ▸ Close all...**.

All opened databases will be closed.

5.3.4 Create database

How to proceed?

1. Select program part **Database**.
2. Click on the symbol or menu item **File ▸ Database manager…**.

   The dialog window **Database manager** opens.
3. Click on the menu item **Edit ▸ New…**.

   The dialog window **New database** opens.
4. Enter a name for the new database.
5. Click on **[OK]**.

   The dialog window **Properties - Database - 'Database name'** opens for editing the database properties.

   Note

   The database name must be unambiguous in the whole Client/Server system.
6. On the tab **General** enter a comment on the database in the field **Comment**.
7. On tab **Access rights**, define access rights for reading and editing the new database for the different user groups.
8. On tab **Backup**, define backup monitoring and automatic backup for the new database.
9. On tab **Monitoring**, define monitoring of size and number of data sets.

5.3.5 Backing up database

How to proceed?

Backing up database manually

1 Select program part **Database**.

2 Click on the symbol or menu item **File** ▸ **Database manager…**.

The window **Database manager** opens.

3 Click on **[Backup]**.

The window **Backup database** opens.

4 Select the directory for the backup in the field **Backup directory**.

5 Select or enter the name for the **Backup file**. If an existing backup file is selected it will be overwritten.

Note

If the backup directory is on a network drive, the backup date should be added manually to the **Backup name** because the backup date information is not available when the directory is restored.

6 Click on **[Start]**.

The manual backup is started and the database is backed up to the selected directory.

Backing up database automatically

1 Select program part **Database**.

2 Click on the symbol or menu item **File** ▸ **Database manager…**.

The dialog window **Database manager** opens.

3 Select desired database.

4 Click on **[Properties]**.

The dialog window **Properties - Database - 'Database name'** opens for editing the database properties.

5 On the tab **General** enter a comment on the database in the field **Comment**.

6 On the tab **Backup** enable the check box **Backup monitoring**.

7 Enter **Interval** for backup monitoring or date for the **Next backup**.

8 Activate the **Start backup automatically** check box.

9 Select the directory for the backup in the field **Backup directory**.

10 Click on **[OK]**.

11 The dialog window **Properties - Database** is closed.

The database is automatically saved in the selected directory at the desired time.

5.3.6 Restoring database

How to proceed?

1 Select program part **Database**.

2 Click on the symbol or menu item **File ▸ Database manager…**.

The dialog window **Database manager** opens.

3 Click on **[Restore]**.

The **Restore databases** dialog window opens.

4 Select the directory in the **Backup directory** in which the desired database was backed up.

5 Select or enter the name for the desired **Backup file**.

6 Enter the name under **Save as** under which the database is to be restored.

7 Click on **[Start]**.

The database restoring is started.

Note

Existing databases cannot be overwritten, i.e. they must first be deleted so that the database can be recovered under its old name.

5.3.7 Delete database

How to proceed?

1. Select program part **Database**.
2. Click on the symbol or menu item **File ▸ Database manager…**.

   The dialog window **Database manager** opens.
3. Select desired database.
4. Click on the menu item **Edit ▸ New…**.

   The selected database is deleted.

Note

Databases that are open cannot be deleted.

5.4 Configuration data

5.4.1 Configuration data in general

The configuration data in **tiBase** is saved in the **Configuration database**. Included among the configuration data are settings for the data import **Security settings** *(see Chapter 3.2.2.1, page 82)*, **User administration** *(see Chapter 3.2.1.1, page 74)*, **Program administration***(see Chapter 3.2.3.1, page 91)* and templates.

For local server systems (**tiBase full**) the configuration database is located in the program folder of the computer on which the program has been installed. In Client/Server systems (**tiBase multi**) the configuration database is stored centrally on the server and saves and contains all the configuration data of all computers (clients) that are connected to this server.

5.4.2 Export configuration data

How to proceed?

1. Select program part **Configuration**.
2. Click on the menu item **File ▸ Export...**.

   The dialog window **Export configuration data** opens.
3. Select desired configuration data.
4. Click on **[OK]**.

   The dialog window **Export configuration data** is closed and the dialog window **Save** opened.
5. Select or enter name and directory for the export file. If an existing export file is selected it will be overwritten.
6. Click on **[Save]**.

   The export of the configuration data is started.

   The selected configuration data is then saved in a file with the extension **.mcfg**.

5.4.3 Importing configuration data

How to proceed?

1. Select program part **Configuration**.
2. Click on the menu item **Determinations ▸ Import...**.

   The dialog window **Open** opens.
3. Select or enter a new name and directory for the import file **MCFG**.
4. Click on **[Open]**.

   The dialog window **Import configuration data** opens.
5. Select desired configuration data.

Note

Data that is not present in the export file cannot be selected.

6 Click on **[OK]**.

The import is started and the selected configuration data is imported.

5.4.4 Backing up configuration data

How to proceed?

Note

It is strongly recommended that the configuration database be backed up periodically.

Backing up configuration data manually

1 Select program part **Configuration**.

2 Click on the menu item **File** ▸ **Backup** ▸ **Manually**.

The dialog window **Backup configuration data manually** opens.

3 Select the directory for the backup in the field **Backup directory**.

4 Select or enter the name for the **Backup file**. If an existing backup file is selected it will be overwritten.

Note

If the backup directory is on a network drive, the backup date should be added manually to the **Backup name** because the backup date information is not available when the directory is restored.

5 Click on **[Start]**.

The manual backup is started and the configuration database is backed up to the selected directory.

Backup configuration data automatically

1. Select program part **Configuration**.
2. Click on menu item **File** ▸ **Backup** ▸ **Automatically**.

   The dialog window **Backup configuration data automatically** opens.
3. Activate the **Automatic backup** check box.
4. Enter **Interval** for backup monitoring or date for the **Next backup**.
5. In the field **Backup directory** select a directory for the backup.
6. Click on **[OK]**.

   The dialog window **Backup configuration data automatically** is closed.

   The configuration database is automatically saved in the selected directory at the desired time.

5.4.5 Restoring configuration data

How to proceed?

tiBase full

1. Exit **tiBase** .
2. Start the file **ConfigRestore.exe** in the program directory **...\tiBase \bin**.

   The dialog window **Restore configuration data** opens.
3. Select the directory in the **Backup directory** field in which the configuration database was backed up.
4. Select or enter the name for the desired **Backup file**.
5. Click on **[Start]**.

   The restoring of the configuration database is started.

tiBase multi

1. Make sure that **tiBase** is closed on all clients connected to the server and on the server itself.

2. Start the file **ConfigRestore.exe** in the program directory**...\tiBase \bin** on the server.

   The dialog window **Restore configuration data** opens.

3. Select the directory in the **Backup directory** field in which the configuration database was backed up.

4. Select or enter the name for the desired **Backup file**.

5. Click on **[Start]**.

   The restoring of the configuration database is started.

6.

5.5 Import of PC/LIMS reports

5.5.1 Import - automatically

How to proceed?

1. Select program part **Configuration**.

2. In the subwindow **Import processes**, click on the menu item **Edit ▸ New**.

   The dialog window **Properties Import process** opens.

3. Enter the name of the import process.

4. Click on the symbol ...

   The dialog window **Select directory** opens.

5. Select the source directory with the PC/LIMS reports to be imported to the database.

6. Click on **[Select]**.

The path is entered in the field **Data source**.

7 Select the database in which the PC/LIMS reports are to be saved.

8 Enter a comment (optional).

9 If importing the PC/LIMS reports is to run automatically at the start of tiBase , activate the check box **Start automatically**.

If the checkbox is deactivated, the PC/LIMS reports have to be imported manually.

10 Activate the option button **Delete file** if the PC/LIMS reports are to be deleted in the source directory after the import into the tiBase database.

11 Activate the option button **Move file** if the PC/LIMS reports are to be moved from the source directory to another directory after the import into the tiBase database.

12 Click on the symbol ...

The dialog window **Select directory** opens.

13 Select the directory (create new), in which the PC/LIMS reports are to be moved to.

14 Click on **[Select]**.

The path is entered in the field **Directory**.

5.5.2 Import - manually

How to proceed?

1 Select program part **Database**.

2 Click on the menu item **Determinations ▸ Import....** or the symbol .

The dialog window **Import determinations** opens.

3 Select the PC/LIMS reports.

4 Click on **[Open]**.

5.5.3 Edit import

How to proceed?

1. Select program part **Configuration**.
2. In the subwindow **Import processes**, click on the menu item **Edit ▸ New**.

   The dialog window **Properties Import process** opens.
3. Edit the name of the import process.
4. Click on the symbol ...

   The dialog window **Select directory** opens.
5. Select the directory with the PC/LIMS reports to be imported to the database.
6. Click on **[Select]**.

   The path is entered in the field **Data source**.
7. Enter a comment (optional).
8. If importing the PC/LIMS reports is to run automatically at the start of tiBase , activate the check box **Start automatically**.

   If the checkbox is deactivated, the PC/LIMS reports have to be imported manually.
9. Activate the option button **Delete file** if the PC/LIMS reports are to be deleted in the source directory after the import into the tiBase database.
10. Activate the option button **Move file** if the PC/LIMS reports are to be moved from the source directory to another directory after the import into the tiBase database.
11. Click on the symbol ...

    The dialog window **Select directory** opens.
12. Select the directory (create new), in which the PC/LIMS reports are to be moved to.

13 Click on **[Select]**.

The path is entered in the field **Directory**.

5.5.4 Import - one USB stick

How to proceed?

Define the properties of the import

1 Select program part **Configuration**.

2 In the subwindow **Import processes**, click on the menu item **Edit ▸ New**.

The dialog window **Properties Import process** opens.

3 Enter the name of the import process.

4 Click on the symbol ...

The dialog window **Select directory** opens.

5 As data source select a path which can access a USB stick

6 Click on **[Select]**.

The path is entered in the field **Data source**.

7 Select the database in which the PC/LIMS reports are to be saved.

8 Enter a comment (optional).

9 If importing the PC/LIMS reports is to run automatically at the start of tiBase , activate the check box **Start automatically**.

If the checkbox is deactivated, the PC/LIMS reports have to be imported manually.

10 Activate the option button **Delete file** if the PC/LIMS reports are to be deleted in the source directory after the import into the tiBase database.

11 Activate the option button **Move file** if the PC/LIMS reports are to be moved from the source directory to another directory after the import into the tiBase database.

12 Click on the symbol ...

The dialog window **Select directory** opens.

13 Select the directory (create new), in which the PC/LIMS reports are to be moved to.

14 Click on **[Select]**.

The path is entered in the field **Directory**.

Import with USB stick

The PC/LIMS reports are saved on a USB stick by the Titrino plus.

1 Connect the USB stick to the PC

tiBase directly imports the PC/LIMS reports from the USB stick.

5.5.5 Import - several USB sticks

How to proceed?

When importing via several USB sticks, an own drive letter is to be assigned to each stick.

Assign drive letter - Windows XP

1 Connect the USB stick to the PC.

2 Open the context menu of the **Workplace** with the right mouse button.

3 Click on the menu item **Administration**.

The dialog window **Computer administration** opens.

4 Click on **Storage device administration**.

5 With the right mouse button, click on the drive letter of the USB stick in the list of storage devices.

6 In the context menu, click on **Modify drive letter and paths**

The dialog window **Modify drive letter and path for 'Name'** opens.

7 Click on **[Modify...]**.

8 Select a new drive letter in the selection list.

The new drive letter must not have been used. Neither by a USB stick which is not connected.

9 Confirm with **[OK]**.

Note

If the USB stick is used on another PC the drive letter must be checked.

Assign drive letter - Windows Vista

1 Connect the USB stick to the PC.

2 Click on **Start** ▸ **Computer**.

3 Click on the menu item **Administration**

The dialog window **Computer administration** opens.

4 Click on **Storage device administration**.

5 In the list of storage devices with the right mouse button click on the drive letter of the USB stick.

6 In the context menu, click on **Modify drive letter and paths**

The dialog window **Modify drive letter and path for 'Name'** opens.

7 Click on **[Modify...]**.

8 Select a new drive letter in the selection list.

The new drive letter must not have been used. Neither by a USB stick which is not connected.

9 Confirm with **[OK]**.

Note

If the USB stick is used on another PC the drive letter must be checked.

Define the properties of the import

1 Select program part **Configuration**.

2 In the subwindow **Import processes**, click on the menu item **Edit ▸ New**.

The dialog window **Properties Import process** opens.

3 Enter the name of the import process.

4 Click on the symbol ...

The dialog window **Select directory** opens.

5 As data source select a path which can access a USB stick

6 Click on **[Select]**.

The path is entered in the field **Data source**.

7 Select the database in which the PC/LIMS reports are to be saved.

8 Enter a comment (optional).

9 If importing the PC/LIMS reports is to run automatically at the start of tiBase , activate the check box **Start automatically**.

If the checkbox is deactivated, the PC/LIMS reports have to be imported manually.

10 Activate the option button **Delete file** if the PC/LIMS reports are to be deleted in the source directory after the import into the tiBase database.

11 Activate the option button **Move file** if the PC/LIMS reports are to be moved from the source directory to another directory after the import into the tiBase database.

12 Click on the symbol ...

The dialog window **Select directory** opens.

13 Select the directory (create new), in which the PC/LIMS reports are to be moved to.

14 Click on **[Select]**.

The path is entered in the field **Directory**.

Import with USB stick

The PC/LIMS reports are saved on a USB stick by the Titrino plus.

1 Connect the USB stick to the PC

tiBase directly imports the PC/LIMS reports from the USB stick.

5.5.6 Import protocol - Properties

How to proceed?

1 Select program part **Configuration**.

2 In the subwindow **Import protocol**, click on the menu item **Edit ▸ Options...**.

The dialog window **Properties Import protocol** opens.

3 Activate the check box for the required filter options.

4 Enter the desired maximum number of log entries.

5 Click on **[OK]**.

5.5.7 Delete import protocol

How to proceed?

1. Select program part **Configuration**.

2. In the subwindow **Import protocol**, click on the menu item **Edit ▸ Delete all messages**.

5.6 Reports

5.6.1 Creating report template

How to proceed?

1. Select program part **Database**.

2. **Note**

   A database must be open in order to carry out subsequent steps.

   Click on the menu item **Tools ▸ Report templates ▸ New ▸ Form report…** or **Tools ▸ Report templates ▸ New ▸ Tabular Report…**.

   The program window **Report template** with an empty report template opens.

3. Click on the menu item **File ▸ Page setup…** in the program window **Report template**.

   The dialog window **Page setup** opens.

4. Define desired settings for the report format.

5. Click on **[OK]**.

   The dialog window **Page setup** is closed.

6. In the program window **Report template**, click on the menu item **Tools ▸ Options...**.

   The dialog window **Options for report templates** opens.

7. Define desired settings for the report template.

8 Close the dialog window with **[OK]**.

9 Select desired module symbol on the Module bar and place it on the report template by creating a field with the left mouse button.

The properties window for the corresponding module opens automatically.

10 Enter desired settings for the module.

11 Click on **[OK]**.

The properties window is closed.

12 Repeat steps **7** and **8** for each desired module.

13 Click on the symbol or the menu item **File ▸ Save as...**.

The dialog window **Save report template** opens.

14 In the field **Name** enter a name.

15 Click on **[Save]**.

The report template is saved under the name entered.

5.6.2 Edit report template

How to proceed?

1 Select program part **Database**.

2 Click on the symbol or on the menu item **Tools ▸ Report templates ▸ Open...**.

The program window **Open report template** opens.

3 Open desired report template.

4 Click on **[Open]**.

The program window with the selected report template opens.

5 Click on the menu item **File ▸ Page setup...**.

The dialog window **Page setup** opens.

6 Define desired settings for the report format.

7 Close the dialog window with **[OK]**.

8 In the program window **Report template**, click on the menu item **Tools ▸ Options...**.

The dialog window **Options for report templates** opens.

9 Define desired settings for the report template.

10 Close the window with **[OK]**.

Editing existing modules

1 Select the symbol on the module bar and double-click on the desired module in the report template.

The properties window of the selected module opens automatically.

2 Enter desired settings for the module.

3 Close the properties window with **[OK]**.

4 Repeat steps **1** and **2** for each desired module.

Creating new modules

1 Select desired module symbol on the Module bar and place it on the report template by creating a field with the left mouse button.

The properties window for the corresponding module opens automatically.

2 Define desired setttings for the module.

3 Close the properties window with **[OK]**.

4 Repeat steps **1** and **2** for each desired new module.

5 Click on the symbol or the menu item **File ▸ Save**.

The report template is saved.

5.6.3 Printing determination report

How to proceed?

1. Select program part **Database**.
2. Click on the symbol or the menu item **File** ▸ **Open...**.

   The dialog window **Open database** opens.
3. Select desired database or enter name in the field **Database name**.
4. Click on **[Open]**.

   The selected database opens and its data sets are displayed in the **Determination overview**. The database name is displayed in the title bar of the program, the number of currently opened databases is displayed in the left upper corner of the database symbol.

   Note

   A maximum of 4 databases can be opened, but only 2 can be displayed at the same time. Databases that are open at the time the program is ended will be automatically opened the next time the program is started.
5. Select desired determinations.
6. Click on the menu item **File** ▸ **Print** ▸ **Report...**.

   The dialog window **Report output** opens.
7. Under **Selection**, select desired determinations.
8. Under **Report type**, select the option **Original report** or **Report template**.
9. Under **Output target**, enable the check box **Printer** and/or select **PDF file**.

Note

If several reports are produced simultaneously as a PDF file then an index will be automatically appended to the file name.

10 In the dialog window **Report output**, click on **[OK]**.

The reports of the selected determination are put out.

5.6.4 Printing determination overview

How to proceed?

1 Select program part **Database**.

2 Click on the symbol or the menu item **File ▸ Open...**.

The dialog window **Open database** opens.

3 Select desired database or enter name in the field **Database name**.

4 Click on **[Open]**.

The selected database opens and its data sets are displayed in the **Determination overview**. The database name is displayed in the title bar of the program, the number of currently opened databases is displayed in the left upper corner of the database symbol.

Note

A maximum of 4 databases can be opened, but only 2 can be displayed at the same time. Databases that are open at the time the program is ended will be automatically opened the next time the program is started.

5 Select desired determinations.

6 Click on menu item **File ▸ Print ▸ Determination overview...**.

The dialog window **Print determination overview (PDF)** opens.

7 Under **Selection**, select desired determinations.

8 Under **Orientation**, select the option **Portrait format** or **Landscape format**.

9 Click on **[OK]**.

The determination overview is opened as PDF file.

5.7 No Help available

Note

There is unfortunately no Help available for this topic.

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