

tiBase 1.1



Version 1.1

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Manual
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Metrohm AG

CH-9100 Herisau

Switzerland

Phone +41 71 353 85 85

Fax +41 71 353 89 01

info@metrohm.com

www.metrohm.com

tiBase 1.1

Manual

Teachware
Metrohm AG
CH-9100 Herisau
teachware@metrohm.com

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1 Introduction

1.1 Welcome to tiBase

Introduction



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

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 generated by Titrino plus, Coulometer, PC Control, Touch Control, Ti-Touch und Compact Titrosampler 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
MySQL	MySQL 5.7.32
PostgreSQL	PostgreSQL 12.1
Oracle	Oracle 19c
Microsoft SQL Server	Microsoft SQL Server 2019
IBM DB/2	IBM DB/2 11.5
Informatica	Informatica 10.5
Teradata	Teradata 16.0
Greenplum	Greenplum 6.24
Redshift	Amazon Redshift 7.6.3
Aurora	Amazon Aurora 3.11.1
BigQuery	Google BigQuery 2.15.0
Databricks	Databricks 9.1
Delta Lake	Delta Lake 2.2.0
Parquet	Parquet 1.12.0
Avro	Avro 1.9.2
JSON	JSON 5.0.0
XML	XML 1.0
YAML	YAML 1.2
CSV	CSV 1.0
TSV	TSV 1.0
Parquet	Parquet 1.12.0
Avro	Avro 1.9.2
JSON	JSON 5.0.0
XML	XML 1.0
YAML	YAML 1.2
CSV	CSV 1.0
TSV	TSV 1.0

Depending on the access permissions, 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 permissions.

In the centre of the screen are the **information windows** with the 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 windows or 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 Instrument integration

Introduction

PC/LIMS reports can be read into tiBase by:

- Titrino plus
848, 870, 877
- Touch Control
840 (5.840.0150), 900
- Ti-Touch
915, 916
- PC Control
- 862 Compact Titrosampler
- 899 Coulometer

1.5 Database

Introduction

tiBase is based on an **object-oriented database** that has proven itself in practice. All program settings, the user administration, methods and templates are stored in the **configuration database** and the determination data is stored in the **determination databases** defined by the user. 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 managing, searching for and grouping results. Quick filters allow the user to browse 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 93*).
- Layout manager for the database view (*see Chapter 4.1.7, page 119*).
- Quick filters (*see Chapter 4.5.2.4.3, page 216*).



- Efficient search functions (see Chapter 4.5.2.3, page 213).
- Access permissions control for every database (see Chapter 4.3.5.3, page 128).
- Automatic database backup (see Chapter 4.3.5.4, page 129).
- Control charts (see Chapter 4.5.2.16, page 254).
- Reprocess determinations (see Chapter 4.5.2.6, page 226).

1.6 Communication

Introduction

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

Overview of functions

- Import of PC/LIMS reports (see Chapter 3.4.3, page 106).
- Various export formats, e.g. XML, CSV, SLK (see Chapter 4.4.4.2.1, page 179).
- Report designer (see Chapter 4.4.1.4.1.1, page 136).
- E-mail functions for security settings (see Chapter 3.2.2.7, page 91).
- Send determinations by e-mail (see Chapter 4.5.2.7, page 249).

1.7 Conformity

Introduction

tiBase also sets new standards with respect to the fulfilling of **GMP and GLP requirements**. The latest quality standards and validation procedures were implemented in developing and programming the software. A centralized user administration defines the access permissions 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 shared and protected against further modifications. It is thus possible to mirror customized workflows in **tiBase**.

All data is **version-controlled** and protected against unauthorized access, modification or deletion 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 1.1

- Conformity is priority in development and validation.
- Central user administration (*see Chapter 3.2.1.1, page 75*).
- Detailed access permissions (*see Chapter 3.2.1.2.2, page 78*).
- Password protection under tiBase or Windows (*see Chapter 3.2.2.2, page 84*).
- 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 253*).

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 1.1 full	tiBase 1.1 multi
Product	6.6063.112	6.6063.113
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 a very extensive and detailed online help that can be accessed in two ways:

- **General call** The **Help** ► **tiBase Help** menu item or the symbol  is used to open the online help with the topic *Welcome to tiBase*. From there you can jump to the desired topic via **Contents**, **Index**, **Search** or personal **Favorites**.
- **Context-sensitive call** With the **[F1]** function key 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 formatting are used in this documentation:

<i>Configuration</i>	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.
[Next]	Button
	Formula editor Formulae can be entered in fields with this symbol, and the formula editor opens when you click on the symbol (<i>see Chapter 2.4, page 17</i>).
1	Instruction step Carry out these steps in the sequence shown.
	Caution This symbol draws attention to possible 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

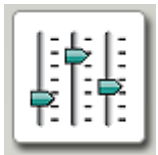
General program functions

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. The respective symbol is disabled in such cases.

2.1.2 Database - User interface

Program part: **Database**

Database symbol



Clicking on the database symbol in the vertical bar on the left opens the **Database** program part, 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 123).

Elements

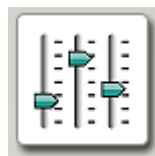
The user interface of the **Database** program part is comprised of the following elements:

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

2.1.3 Configuration - User interface

Program part: **Configuration**

Configuration symbol



Clicking on the configuration symbol in the vertical bar at the left opens the **Configuration** program part, while at the same time the configuration symbol is shown in color.

Elements

The user interface of the **Configuration** program part is comprised of 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

The **[Set]** button on the **Login/Password protection** tab in the **Security settings** dialog window has to be pressed in order to make the settings. The following conditions will then be 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 in **Windows**.
- **User names** must be **unique**. Users cannot be deleted once they have been entered.
- **Passwords** must be **unique** for each 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 after a defined **validity period**.
- The **number of login attempts** is limited. If this number is exceeded, the user will automatically be set to **inactive** status.

Actions

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

- Logging in at program start
- Logging out manually
- Logging out automatically
- Changing password

2.2.2 Logging in

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 **Log in** dialog window will appear every time the program is started and after each time a user logs out.

User

Entry of the short name of the user.

Entry	24 characters
-------	---------------

Password

Entry of the password.

Entry	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 81) specified by the administrator. Afterwards, the **Change password** window will automatically open in which a new password must be entered.

[Change password]

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

[Cancel]

The login is canceled and the program is terminated.

2.2.3 Logging out manually

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

A logged-in user can log out at any time with the **File ► Logout** menu item. The logout options defined in the **Security settings** apply. After the logout, the **Log in** window opens in which a new user can log in.

2.2.4 Logging out automatically

Program part: **Configuration**

If the automatic logout is activated in the **Security settings**, then the user will be logged out automatically after the defined waiting time if no operating functions have been performed in the meantime via keyboard or mouse. The **Log in** window appears again afterwards, but only the same user or members of the same user group can use it to log back in again.



Note

Users with administrator rights can always log in.

2.2.5 Changing the password

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



Note

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

[Change password]

This button in the **Log in** dialog window opens the **Change password** window, in which the new password must be entered and confirmed.



Note

The password must always 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 opens automatically after login with the **Start password**. Here you will also need to enter the **Start password** assigned by the administrator in the **Old password** field.

Old password

Entry of the previous password.

Entry	24 characters
-------	---------------

New password

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

Entry	24 characters
-------	---------------

Confirm password

Confirmation of the new password.

Entry	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**
Determinations can be signed at two levels (signature level 1 and signature level 2) by entering the user name and a password.
- **Multiple signing**
Determinations can be signed several times at each level.
- **Signing at level 1**
If level 2 has been signed, then no more signatures are possible at level 1.



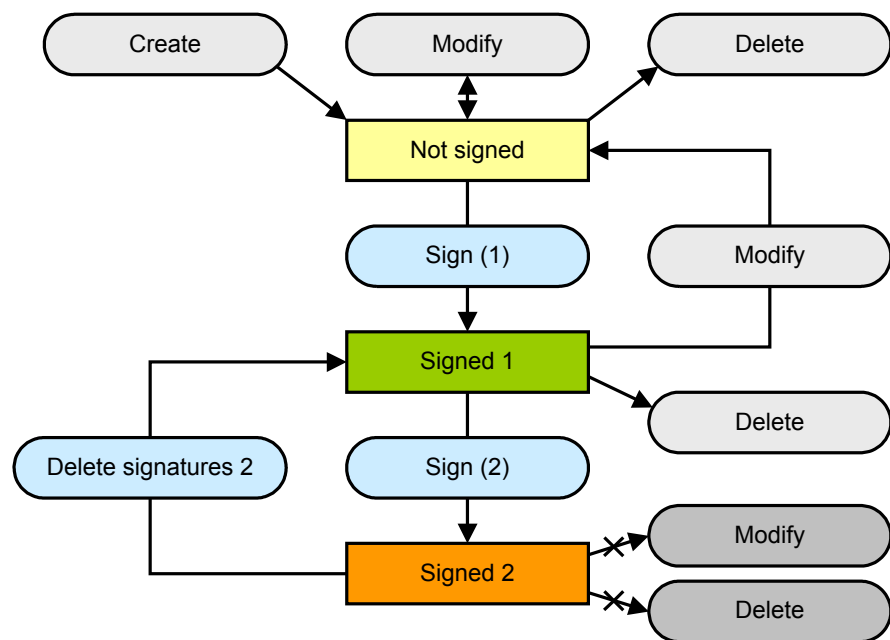
- **Signing at level 2**
Level 2 can not be signed unless there are already signatures on level 1.
- **Different users**
The same user may not sign on both level 1 and level 2.
- **Reason and comment**
Each signature must be accompanied by a reason selected from predefined default reasons. An additional comment can also be entered.
- **Saved data**
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 a new version is created.
- **Deleting signatures 2**
Signatures at level 2 can only be deleted by users who have the respective permission.
- **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 statuses with respect to signatures (see flow diagram):

- **Not signed**
Determinations that are not signed can be deleted and changed, with a new version being created each time there is a change.
- **Signed (1)**
No new versions are generated when determinations are signed at level 1. If determinations signed at level 1 are changed, then a new version will be generated that no longer contains any signatures. Determinations signed at level 1 can be deleted.
- **Signed (2)**
No new versions are generated when determinations are signed at level 2. Determinations signed at level 2 can neither be changed nor deleted. It is, however, possible to delete the signatures (2), although the signatures (1) will be 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 that have been signed at level 1 can be modified and deleted. If the modified method or determination is saved as a new version, however, then all existing signatures will be deleted automatically, i.e. the method or determination must be signed once again.

Info

Display of information for signing and deleting signatures. The following messages are possible:

Selection	Signature possible (signature 2 exists)	Signature 1 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).

Entry	24 characters
-------	---------------

Password

Entry of the password.

Entry	24 characters
-------	---------------

Reason

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

Selection	Selection from the default reasons
-----------	------------------------------------

Comment

Entry of a comment on the signature.

Entry	1,000 characters
-------	------------------

[Sign]

Sign the determination. The window remains open.



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

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 signed at level 2 are **locked**, i.e. they can be neither modified nor deleted. In order to be able to edit such determinations again, the signatures on 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)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
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86	
87	
88	
89	
90	
91	
92	
93	
94	
95	
96	
97	
98	
99	
100	

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).

Entry	24 characters
-------	---------------

Password

Entry of the password.

Entry	24 characters
-------	---------------

Reason

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

Selection	Selection from the default reasons
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
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78	78
79	79
80	80
81	81
82	82
83	83
84	84
85	85
86	86
87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99

Comment

Entry of a comment on the signature.

Entry	1,000 characters
-------	------------------

[Sign]

Sign the determination. The window remains open.



Note

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

2.3.5 Deleting signatures Level 2

Dialog window: Database ▶ Determinations ▶ Sign ▶ Delete Signatures 2... ▶ Delete Signatures Level 2

The **Delete Signatures Level 2** window allows you to delete all of the signatures on level 2 for the selected method or determination.

User

Entry of the user name (short name).

Entry	24 characters
-------	---------------

Password

Entry of the password.

Entry	24 characters
-------	---------------

Reason

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

[illegible]

Comment

Entry of a comment on the signature.

Entry	1,000 characters
-------	------------------

[Delete]

Delete signatures 2.



Note

Signatures 2 can only be deleted if the user belongs to a user group with the respective permission.

Dialog window: **Formula editor**

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

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.

Mean value

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

Absolute standard deviation

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

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
<i>Method variables</i>	'MV.Variable name'	Method variables include the variables FCT and DIV
<i>Sample data variables</i>	'MV.Variable name'	Sample data variables include the variables Sample size , Unit , Sample position , ID1 and ID2 .
<i>Command variables</i>	'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.
<i>Result variables</i>	'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.
<i>Determination variables</i>	'DV.Variable identification'	Determination variables are general variables and cannot be assigned to individual commands.

Name	Syntax	Description
<i>System variables</i>	'SV.Variable identification'	System variables are general variables which are adopted in the determination at the start of the determination.
<i>Common variables</i>	'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'**

Occurrence

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

Sample data variables

Variable name (PC-Control)	Variable name (tiBase 1.1)	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 1.1. The variable **COO** becomes **Abs MV.Sample.Size** in tiBase 1.1

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

Variable name (PC-Control)	Variable name (tiBase 1.1)	Description	Command
.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
.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)

Variable name (PC-Control)	Variable name (tiBase 1.1)	Description	Command
.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
.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

Variable name (PC-Control)	Variable name (tiBase 1.1)	Description	Command
.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
.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

Variable name (PC-Control)	Variable name (tiBase 1.1)	Description	Command
.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 1.1)	Description	Command
.R1 to .R9	[.VAL]	Result value (.VAL optional; number)	CALC
SSA#	.ASD	Absolute standard deviation for the result (number)	CALC

Variable name (PC-Control)	Variable name (tiBase 1.1)	Description	Command
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 1.1)	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 1.1)	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
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 1.1)	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 measurement 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 (/) - Potentialiation (^)	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	$\wedge$
	$*, /$
	$+, -$
Comparison	$<, <=, >, >=$
Logic	AND, OR

2.4.4.2.1 Addition

Syntax

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

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.

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.

Operand1	Operand2	Result	Example	Remark
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
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 +bi, 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.

Operand1	Operand2	Result	Example	Remark
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)	-
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 <i>Time(Date)</i>
Operands of a different type:				

Operand of different type: The operand which does not correspond to the result type is converted to the relevant result type before the operation.

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 (<i>see Chapter 2.4.4.10, page 66</i>). Attention: Uppercase and lowercase letters have different values!
Time	Time	Number	Time(1998;04;06) = Time(1964;02;03) --> 0	(<i>see Chapter 2.4.4.6.2, page 54</i>)
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 (<i>see Chapter 2.4.4.10, page 66</i>).
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 (<i>see Chapter 2.4.4.7.5, page 59</i>).
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 (<i>see Chapter 2.4.4.10, page 66</i>).
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 66). Attention: Uppercase 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 54)
Operands of a different type:				
Number	Text	Number	1.2 > "Metrohm" --> 0 1.23 > "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 66).
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 66).
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 66). 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 54)
Operands of a different type:				
Number	Text	Number	1.2 < "Metrohm" --> 1 1.2 < "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 66).
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 66).
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 (<i>see Chapter 2.4.4.10, page 66</i>). Attention: Upper-case and lowercase letters have different values!
Time	Time	Number	Time(1998;04;06) <= Time(1964;02;03) --> 0	(<i>see Chapter 2.4.4.6.2, page 54</i>)
Operands of a different type:				
Number	Text	Number	2 <= "1.2" --> 0 1.2 <= "Metrohm" --> 1	Before the relational operation, the Number is converted to Text , afterwards the texts are compared according to ASCII value (<i>see Chapter 2.4.4.10, page 66</i>).
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 (<i>see Chapter 2.4.4.10, page 66</i>).
Time	Text	Number	Time(1999;10;7) <= "Metrohm" --> 1	The same rules apply here as for the previous operation.

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 (<i>see Chapter 2.4.4.10, page 66</i>). Attention: Upper-case and lowercase letters have different values!
Time	Time	Number	Time(1998;04;06) <> Time(1964;02;03) --> 1	(<i>see Chapter 2.4.4.6.2, page 54</i>)
Operands of a different type:				
Number	Text	Number	1.2 <> "1.2" --> 0 1.2 <> "Metrohm" --> 1	Before the relational operation, the Number is converted to Text , afterwards the texts are compared according to ASCII value (<i>see Chapter 2.4.4.10, page 66</i>).
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 (<i>see Chapter 2.4.4.10, page 66</i>).
Time	Text	Number	Time(1999;10;7) <> "Metrohm" --> 1	The same rules apply here as for the previous operation.

Common logarithm

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

Syntax

$$y = \text{Log}(\text{number})$$

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

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

$$\text{Log}(10) = 1$$

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

Square root

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

Syntax

y = Sqrt(number)

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

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.AverageTemp** 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.AverageTemp** without sign

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

$$\text{Int}(-55.325) = -55$$

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

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

$$\text{Sign}(26.115) = 1$$

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

$$t_s = \text{Tinv}(\text{Probability}; \text{Degrees of freedom})$$

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 $\nu = n - 1$. 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 (Test-Date) 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** between 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**

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: **TextPosition("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

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. If 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

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** $\neq 0$, 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

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 (I)	123	Curly parentheses (I)
60	Less than (<)	92	Backslash (\)	124	Vertical stroke (I)
61	Equals (=)	93	Square parentheses (I)	125	Curly parentheses (I)
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
H ₂ SO ₄	98.0734
Ca(OH) ₂	74.09268
AlCl ₃ *6H ₂ O	238.43174



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 60)* 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.

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.

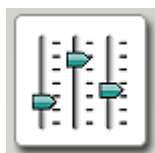
Organization

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 - User interface

Program part: **Configuration**

Configuration symbol



Clicking on the configuration symbol in the vertical bar at the left opens the **Configuration** program part while, at the same time, the configuration symbol is shown in color.

Elements

The user interface of the **Configuration** program part comprises the following elements:

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

3.1.3.4 Configuration - Tools menu

Program part: **Configuration**

 User administration...	Manage users and groups of users with access permissions, signature permissions and options (<i>see Chapter 3.2.1.1, page 75</i>).
 Security settings...	Options for login, password protection and electronic signature (<i>see Chapter 3.2.2.1, page 83</i>).
Program administration...	General settings for local server and client/server settings (<i>see Chapter 3.2.3.1, page 93</i>).
Options...	Set program options (<i>see Chapter 3.3.3.1, page 102</i>).

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...	Manage users and groups of users with access permissions, signature permissions and options (<i>see Chapter 3.2.1.1, page 75</i>).
 Security settings...	Options for login, password protection, Audit Trail and electronic signature (<i>see Chapter 3.2.2.1, page 83</i>).
 Logout...	Log out user (<i>see Chapter 2.2.3, page 10</i>).
 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.

Short name of the 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.

Entry	24 characters
-------	---------------

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

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

Entry	50 characters
-------	---------------

Confirmation of the start password.

Entry	50 characters
-------	---------------

Dialog window: **Configuration** ► **&Tools** ► **Security settings**

Parameters for login, password protection and electronic signatures can be configured in the **Security settings** dialog window.

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 output as a PDF file with the **&File ▶ &Print (PDF)... ▶ &Security settings** menu item.



Note

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

1. Start/execute "secpol.msc".
2. Under "Local Policies/User Rights Assignment", activate the "Act as part of the operating system" policy for all desired user groups.
3. Restart the computer.

Maximum number of login attempts

If this check box is **activated**, then a user will be set to the **disabled** status as soon as the number of login attempts defined here has been exceeded. A user with the **disabled** status can no longer log in. The counter for the login attempts is reset for the respective user once he or she has logged in successfully.

Selection	on off
Default value	off Recommended setting: on (can no longer be edited)
Input range	2 - 5
Default value	3 Recommended setting: 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 login attempts has been exceeded.

If no definition of the e-mail parameters has been entered, the **[E-mail...]** dialog will be opened when the check box is activated.

Selection	on off
Default value	off
	Recommended setting: off

[E-mail...]

This button opens the **Send e-mail** window (see Chapter 3.2.2.7, page 91) for defining the e-mail parameters.

Logout policies

New login only for same user

If this check box is **activated**, then only the same user can log in again after a logout. Users with administrator rights can always log in.

Minimum password length

Activating this check box ensures that the password must contain at least the indicated number of characters.

Selection	on off
Default value	off Recommended setting: on (can no longer be edited)
Input range	1 - 10 characters
Default value	6 characters Recommended setting: 6

Passwords expire every

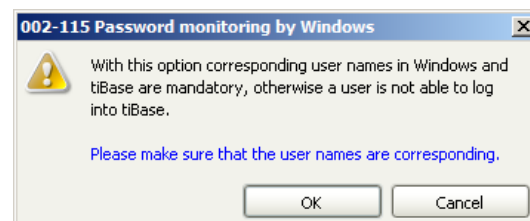
Activating this check box ensures that the user must enter a new password before the validity period expires. When a user logs in whose password will expire within the next 10 days, a corresponding message will appear. If the validity period has expired, the user can only log in if he or she changes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

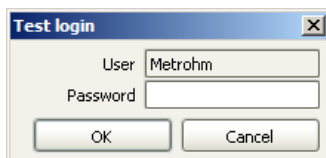
Selection	on off
Default value	off Recommended setting: on (can no longer be edited)
Input range	1 - 999 days
Default value	365 days Recommended setting: 365

3.2.2.3 Test login for password monitoring by Windows

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

If the **Password monitoring by Windows** option (see Chapter 3.2.2.2, page 84) is activated, then the Windows password of the user must be entered in this dialog window. The test login is used to check whether the user name matches the Windows user name.





Display of the current user name.

Entry of the Windows password.

3.2.2.4 Changes

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

3.2.2.5 Signatures

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

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Remove password after signature

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

Selection	on off
Default value	off
	Recommended setting: on (can no longer be edited)

Sign each determination separately

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

Selection	on off
Default value	off
	Recommended setting: on (can no longer be edited)

3.2.2.6 Default reasons

Tab: **Configuration** ▶ **&Tools** ▶ **Security settings** ▶ **Default reasons**

The reasons which must be entered when signing determinations or changing determinations are defined on the **Default reasons** tab.

Category

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

Selection	Signature level 1 Signature level 2 Modification of determinations
Default value	Signature level 1

Reasons

Display of the reasons defined for the selected category.

Entry	64 characters
-------	---------------



Move text upward (modifies sequence).



Move text downward (modifies sequence).

[New]

Add a new reason.

[Edit]

Edit the selected reason.

Delete the selected reason.

Signature Level 1

Selection	Review Approval Authorship Responsibility Release Determination modified Results checked
-----------	--

Selection **Review | Approval | Authorship | Responsibility | Release | Determination modified | Results checked | Signature 2 deleted**

Selection **Variable modified** | **Calculation modified** | **Statistics modified** | **Curve evaluation modified**

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

E-mail address of the recipient.

Entry	200 characters
-------	----------------

Title for describing the message.

Entry	200 characters
-------	----------------

The message defined here is sent as an e-mail when the maximum permitted number of login attempts has been exceeded.

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



Selection	Text (unlimited)
-----------	------------------

Mail from

E-mail address of the sender.

SMTP Server

Entry	200 characters
-------	----------------

Address of the SMTP mail server.

Entry	200 characters
-------	----------------

Port

Port number of the SMTP mail server.

Input 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 and for selecting the authentication method.

Selection	SMTP	SMTP after POP
-----------	------	----------------

Default value **SMTP**

POP server

Address of the POP mail server.

Entry	200 characters
-------	----------------

Port

Port number of the POP mail server.

Input range	1 - 65536
-------------	------------------

Default value	110
---------------	------------

User

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

Entry **200 characters**

Password

Password for accessing the mail server. This password need not match the Windows password.

Entry	200 characters
-------	----------------

3.2.3.1 Program administration

Overview

Tabs

3.2.3.2.1 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 created during installation.



Note

The following buttons are only active when **tiBase** is running on the server, they are inactive for the individual clients.

[New]

Add a new backup directory (see [Chapter 3.2.3.2.2, page 94](#)).

[Edit]

Edit the selected backup directory (see *Chapter 3.2.3.2.3, page 94*).

[Delete]

Delete the selected backup directory.



Note

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

3.2.3.2.2 Creating a new backup directory

Dialog window: **Configuration ▶ &Tools ▶ &User administration... ▶ Backup directories ▶ [New] ▶ New backup directory**

Name

Name for the backup directory.

Entry	50 characters
-------	---------------

Directory

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

Entry	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 permission on the selected directory.

3.2.3.2.3 Editing a backup directory

Dialog window: **Configuration ▶ &Tools ▶ &User administration... ▶ Backup directories ▶ [Edit] ▶ Edit backup directory**

Name

Name for the backup directory.

Entry	50 characters
-------	---------------



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

Entry 1000 characters



Tab: **Configuration** ▶ **&Tools** ▶ **Program administration** ▶ **Clients**

Display of the ID for the client that has been entered for the client/server

Display of the name of the computer on which the client has been instal-

Display as to whether **tiBase** has been started on the client (**active**) or



Note

The content of the tab **Clients** can also be displayed via the shortcut  **Clients** in the directory `..\Metrohm\TiBase\bin` (available only on the server) if **tiBase** is not running.

3.2.3.4 Licenses

Tab: **Configuration** ▶ **&Tools** ▶ **Program administration** ▶ **Licenses**

Table with the licenses that are installed on the server (for **tiBase multi**) or on the local server (for **tiBase full**). The table cannot be edited.



Note

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

License code

Display of the entered license code.

Number of clients

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

[Add licenses]

Add new, additional licenses (see *Chapter 3.2.3.5, page 97*).



Note

Starting with Windows Vista, Microsoft has introduced the UAC (User Account Control), which permits running tasks either as a non-administrator or as an administrator (without changes of user, deactivation or similar). This function can, however, cause difficulties with client/server installations of **tiBase** on computers with Windows Vista or Windows 7. Therefore, to add additional licenses, proceed as follows:

- **For new installations**

To enter additional licenses, the program must be started as administrator (position the mouse on the Program icon and click the right mouse button – select **Run as administrator** there). If one then adds the license code for additional licenses in the usual way, then the **license.mlic** file in the **C:\Program Files\Metrohm\'Program name'\bin** directory will contain both license codes.

- **For existing installations**

First of all, the **license.mlic** file in the **C:\Users\'User\'AppData\Local\VirtualStore\Program Files\Metrohm\'Program name\'bin** directory must be deleted. This file must not be present in the **VirtualStore** of any user – a check must be made to make sure of this, and any such files which may be found must be deleted. Afterwards, the program must be started as administrator (position the mouse on the Program icon and click the right mouse button – select **Run as administrator** there). If one then adds the license code for additional licenses in the usual way, then the **license.mlic** file in the **C:\Program Files\Metrohm\'Program name\'bin** directory will contain both license codes.

Additional information on this topic can be found in the installation manual, which is saved in the **C:\Program Files\Metrohm\itiBase\doc** directory.

3.2.3.5 Adding licenses

Dialog window: **Configuration ▶ &Tools ▶ Program administration ▶ Licenses ▶ [Add 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.

3.3 Configuration data

3.3.1 Export/import

3.3.1.1 Exporting configuration data

Dialog window: **Configuration** ► **File** ► **Export...** ► **Export configuration data**

File ► Export... opens the **Export configuration data** dialog window in which the following parts of the configuration database can be selected for export:

Configuration views

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

Export saved configuration views (see Chapter 4.1.7, page 119).

Database views

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

Export saved database views (see *Chapter 4.1.7, page 119*).

Control chart templates

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

Export saved control chart templates (see *Chapter 4.4.3.1, page 174*).

Curve overlay templates

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

Export saved curve overlay templates (see *Chapter 4.4.2.1, page 169*).

Export template

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

Export the saved export template.

Security settings

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

Export security settings (see *Chapter 3.2.2.1, page 83*).

User administration

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

Export user administration (see *Chapter 3.2.1.1, page 75*).

[OK]

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

3.3.1.2 Importing configuration data

Dialog window: **Configuration ► File ► Import... ► Import configuration data**

With **File ► Import...** and after selection of the ***.tcfg** file to be imported, the **Import configuration data** dialog window opens in which the following parts of the configuration database can be selected for import:

With **File ► Import...** and after selection of the ***.tcfg** file to be imported, the **Import configuration data** dialog window opens in which the following parts of the configuration database can be selected for import:



Configuration views

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

Import saved configuration views (see *Chapter 4.1.7, page 119*).

Database views

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

Import saved database views (*see Chapter 4.1.7, page 119*).

Control chart templates
on | off (Default value: **on**)
 Import saved control chart templates (*see Chapter 4.4.3.1, page 174*).

Curve overlay templates
on | off (Default value: **on**)
 Import saved curve overlay templates (see Chapter 4.4.2.1, page 169).

Export template

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

Export the saved export template.

Security settings

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

Import security settings (see *Chapter 3.2.2.1, page 83*).

User administration

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

Import user administration (see *Chapter 3.2.1.1, page 75*).

[OK]

The selected data is imported.

3.3.2 Back up/restore

3.3.2.1 Backing up configuration data automatically

Dialog window: **Configuration ▶ File ▶ Save ▶ Automatically ▶ Backup configura-
tion data automatically**

Automatic backup

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

If this check box is **activated**, then the configuration database is saved automatically to the defined backup directory at the desired time interval. The entire configuration database is saved at this time.

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

Last backup

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

Next backup

Date and time at which the next backup is to be carried out.  opens the **Next backup** window to select the date (see Chapter 2.5.1, page 68).

Default value	Last backup + 1 month
---------------	------------------------------

Interval

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

Input range	1 - 999
Default value	1

Backup directory

Selection of a predefined backup directory (see *Chapter 3.2.3.2.1, page 93*).



Make sure that you have read and write permission for the selected directory.

3.3.2.2 Backing up configuration data manually

Dialog window: **Configuration** ▶ **File** ▶ **Save** ▶ **Manually** ▶ **Backup configuration data manually**

Backup target

Backup directory

Selection of a predefined backup directory (see *Chapter 3.2.3.2.1, page 93*).



Make sure that you have read and write permission for the selected directory.

Backup name

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



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

[Start]

Start the manual backup of the complete configuration database.

3.3.2.3 Restoring configuration data

Dialog window: **Restore configuration data**

"Restore configuration data" dialog window

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

Display of 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

Display of the name of the configuration database. This information is not available if the backup file is located on a network drive.

Size

Display of the size of the configuration database in KB.

Save As

Display of the name under which the configuration database will be restored.

[Start]

Start restoration of the configuration database. After the start, a progress bar appears in the window. The dialog window closes automatically when the backup has been completed.

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.

- ### 3.3.3.2 Options - General

Dialog language

Selection of the dialog language.



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

Tab: **Configuration** ▶ **Tools** ▶ **Options** ▶ **Options** ▶ **Save**

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.

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

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

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

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

Subwindow: **Configuration** ▶ Import processes

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.

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

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

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**.

Name of the tiBase 1.1 database, in which the read-in reports are saved.

Optional comment.

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.

- **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 1.1 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.

Input 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 are the method data used for the determination, the measuring data generated during the determination and the results calculated from it.

Organization

In the case of **local server systems (tiBase 1.1 full)**, the databases are stored on the drives managed 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 1.1 multi)** the databases are stored on drives managed centrally by the server and are globally available throughout the entire client/server system, i.e. all users with the appropriate access rights can use these databases.

4.1.2 Database - User interface

Program part: **Database**

Database symbol



Clicking on the database symbol in the vertical bar on the left opens the **Database** program part, 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 123*).

Elements

The user interface of the **Database** program part is comprised of 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 **Database** program part includes the following main menu items:

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

4.1.3.2 Database - File menu

Program part: **Database**

 Open...	Opens a database (<i>see Chapter 4.2.1, page 122</i>).
Close all	Closes all open databases (<i>see Chapter 4.2.6, page 124</i>).
 Close	Closes the database (<i>see Chapter 4.2.6, page 124</i>).
 Database manager...	Management of the determination databases (<i>see Chapter 4.3.1, page 125</i>).
Print ►	
Determination overview...	PDF file output of the determination overview (<i>see Chapter 4.5.2.11, page 251</i>).

Report...	PDF file output of the report (<i>see Chapter 4.5.2.12, page 251</i>).
 Logout...	Logs out user (<i>see Chapter 2.2.3, page 10</i>).
Exit	Exits the program.

4.1.3.3 Database - Edit menu

Program part: **Database**

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

4.1.3.4 Database - View menu

Program part: **Database**

 Update	Updates the determination overview.
 Change layout...	Modifies the layout of the loaded database view (<i>see Chapter 4.1.7.2, page 120</i>).
 Load view...	Loads a saved database view (<i>see Chapter 4.1.7.3, page 121</i>).
 Save view...	Saves the loaded database view (<i>see Chapter 4.1.7.4, page 121</i>).
 Split vertically	Splits the database window vertically and displays two databases side by side (<i>see Chapter 4.2.4, page 124</i>).
 Split horizontally	Splits the database window horizontally and displays two databases, one above the other (<i>see Chapter 4.2.5, page 124</i>).
 Unsplit	Undoes the splitting of the database window (<i>see Chapter 4.2.3, page 124</i>).
 Properties ►	
Column display	Sets the column display for the Determination overview subwindow (<i>see Chapter 4.5.1.3, page 208</i>).
Properties Results	Set properties for the subwindow Results (<i>see Chapter 4.7, page 266</i>).
☒ Toolbar	Activates/deactivates the toolbar display.

4.1.3.5 Database - Determinations menu

Program part: **Database**

 Comment...	Enter a comment on the selected determination (<i>see Chapter 4.5.2.2, page 213</i>).
 Search	Opens the Search window for searching for determinations (<i>see Chapter 4.5.2.3, page 213</i>).
Filter ►	
 Last filter	Applies the most recently used quick or special filter (<i>see Chapter 4.5.2.4.2, page 216</i>).
 Quick filter	Quick filtering of the database with the content of the selected table cell (<i>see Chapter 4.5.2.4.3, page 216</i>).
 Special filter...	Opens the Special filter window for the definition of user-specific filters (<i>see Chapter 4.5.2.4.4, page 217</i>).
 All statistical records	Displays all related statistical records of the focused determination (<i>see Chapter 4.5.2.4.5, page 218</i>).
 Remove filter	Removes the current filter (<i>see Chapter 4.5.2.4.6, page 218</i>).
Sign ►	
 Signature 1...	Sign the selected determinations on level 1 (<i>see Chapter 2.3.3, page 13</i>).
 Signature 2...	Sign the selected determinations on level 2 (<i>see Chapter 2.3.4, page 14</i>).
Show signatures...	Shows all signatures for the focused determination (<i>see Chapter 4.5.2.5.4, page 225</i>).
Delete signatures 2...	Deletes all signatures at level 2 of the focused determination (<i>see Chapter 2.3.5, page 16</i>).
Send to...	Sends the selected determinations per e-mail (<i>see Chapter 4.5.2.7, page 249</i>).
Export...	Exports the selected determinations (<i>see Chapter 4.5.2.8, page 249</i>).
 Import...	Imports the selected determinations (<i>see Chapter 4.5.2.9, page 250</i>).
 Show history	Shows all versions of the focused determination in the determination table (<i>see Chapter 4.5.2.13, page 253</i>).

 Make current	Makes the old version selected in the history view the current version once again (<i>see Chapter 4.5.2.14, page 253</i>).
 Control chart...	Displays control chart and statistical evaluation of the selected determination (<i>see Chapter 4.5.2.16, page 254</i>).
 Overlay curves...	Overlays the curves of the selected determinations (<i>see Chapter 4.5.2.17, page 255</i>).
 Reprocess...	Reprocesses the selected determinations (<i>see Chapter 4.5.2.6, page 226</i>).
 Delete	Deletes the selected determinations (<i>see Chapter 4.5.2.10, page 250</i>).

4.1.3.6 Database - Tools menu

Program part: **Database**

Report templates ►	
New ►	
Form report	Opens the Report template window with an empty form report (<i>see Chapter 4.4.1.3, page 135</i>). This menu item is disabled as long as the database is empty.
 Open...	Opens a report template for editing (<i>see Chapter 4.4.1.3, page 135</i>). This menu item is disabled as long as the database is empty.
Manager...	Manage report templates (<i>see Chapter 4.4.1.1.1, page 133</i>).
Templates ►	
Control chart templates...	Manage templates for control charts (<i>see Chapter 4.4.3, page 174</i>).
Curve overlay templates...	Manage curve overlay templates (<i>see Chapter 4.4.2.1, page 169</i>).
Export templates...	Manage export templates (<i>see Chapter 4.4.4.1, page 178</i>).

4.1.3.7 Help Menu

Program part: **Configuration / Database**

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

 Filter/Special filter...	Opens the Special filter window for the definition of user-specific filters (see Chapter 4.5.2.4.4, page 217).
 Filter/Remove filter	Removes the current filter (see Chapter 4.5.2.4.6, page 218).
 Import...	Imports selected determinations (*.txt or *.tdet).
 Sign/Signature 1...	Sign the selected determinations on level 1 (see Chapter 2.3.3, page 13).
 Sign/Signature 2...	Sign the selected determinations on level 2 (see Chapter 2.3.4, page 14).
 Show history	Shows all versions of the focused determination in the determination table (see Chapter 4.5.2.13, page 253).
 Make current	Makes the old version selected in the history view the current version once again (see Chapter 4.5.2.14, page 253).
 Control chart...	Displays control chart and statistical evaluation of the selected determination (see Chapter 4.5.2.16, page 254).
 Overlay curves...	Overlays the curves of the selected determinations (see Chapter 4.5.2.17, page 255).
 Reprocess...	Reprocesses the selected determinations (see Chapter 4.5.2.6, page 226).
 Delete	Deletes the selected determinations (see Chapter 4.5.2.10, page 250).
 Report templates/ Open...	Opens a report template for editing (see Chapter 4.4.1.3, page 135).
 tiBase Help	Opens tiBase Help.

4.1.5 Database - Subwindow

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 the focused determination.

4.1.7 Views

4.1.7.1 Views - General

Program part: **Database**

Definition

The term **View** defines the content and design of the main window in the **Database** program part (the **Configuration** program part 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:

- *Changing the layout*
Define the number, arrangement and sequence of the subwindows for the current view.
- *Saving a view*
Save current view.
- *Loading a view*
Load a saved view.
- *Renaming a view*
Rename a saved view.
- *Deleting a view*
Delete a saved view.
- *Toolbar*
Enable or disable the toolbar.

Save automatically

The current view will be saved automatically when the program is closed if the corresponding **Save on closing** item is activated under **Tools ► Options** on the **Save** tab in the Configuration program part.

Load automatically

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 default view that is loaded automatically the first time that the program part is opened can be defined for each user group.

The standard procedure is that views are opened with the following subwindows with the very first program start:

- **Configuration**
Import processes, Import protocols

Backup name

Selection of a backup file.

Selection	Selection of backup files
-----------	----------------------------------

Backup date

Shows the time at which the database was backed up. This information is not available if the backup file is located on a network drive.

Database name

Shows the name of the database. This information is not available if the backup file is located on a network drive.

Number of records

Shows the number of records in the database. This information is not available if the backup file is located on a network drive.

Size

Shows the size of the database in KB.

Save As

Name under which the database is to be restored.

Entry	50 characters
Default value	New database ##

[Start]

Starts database restoring. After the start, a progress bar appears in the window. The dialog window closes automatically once the backup has been completed.



Note

Existing databases cannot be overwritten, i.e. they must first be deleted so that the database can be restored under its old name.

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.

Entry	50 characters
-------	---------------



Note

The name of the report template must be unambiguous 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

4.4.1.2 Create new report template

New form report

4.4.1.3 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.

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 of report template.

Date and time when the report template was saved.

Short name of the user who saved the report template.

Comment on the 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.

Entry	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*

4.4.1.4.1.4 Report template - General toolbar

Program window: **Database ► Report template**

 Save	Save an opened report template (<i>see Chapter 4.4.1.4.2.11, page 149</i>).
 Page preview	Set up the layout for the report template (<i>see Chapter 4.4.1.4.2.8, page 147</i>).
 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 (<i>see Chapter 4.4.1.4.2.6, page 145</i>).
 Copy	Copy the selected items to the clipboard (<i>see Chapter 4.4.1.4.2.6, page 145</i>).
 Insert	Insert marked items from the clipboard (<i>see Chapter 4.4.1.4.2.6, page 145</i>).
 Delete	Delete the marked items (<i>see Chapter 4.4.1.4.2.6, page 145</i>).
 100 %	Select zoom level (<i>see Chapter 4.4.1.4.2.7, page 146</i>).
 Grid	Switch the grid display on and off (<i>see Chapter 4.4.1.4.2.10, page 148</i>).
 Snap to grid	Switch snap at grid on and off (<i>see Chapter 4.4.1.4.2.10, page 148</i>).

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 139*).

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 (<i>see Chapter 4.4.1.4.2.6, page 145</i>).
---	---

Width

Width of the page format. This parameter can only be edited for **Page format= User-defined**

Input 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**

Input 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.

Input range	0.0 - 499.0 mm
Default value	15.0 mm

Bottom

Lower page margin.

Input range	0.0 - 499.0 mm
Default value	15.0 mm

Left

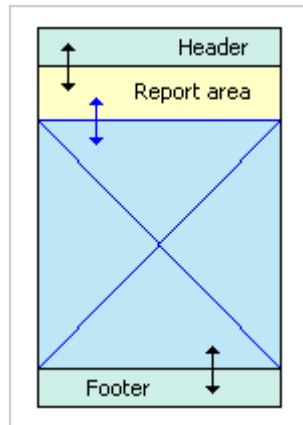
Left-hand page margin.

Input range	0.0 - 499.0 mm
Default value	20.0 mm

Right

Right-hand page margin.

Input range	0.0 - 499.0 mm
Default value	20.0 mm



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.

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

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.



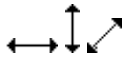
Select several modules

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%**.

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.

Entry	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.

Input range	1.0 - 100.0 mm
Default value	5.0 mm

Y distance

Grid distance in Y-direction.

Input 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.

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

Selection	Arial Windows fonts
Default value	Arial

Save report template

Name

Name under which the report template is to be saved.

Entry	50 characters
-------	---------------



Note

The name of the report template must be unambiguous 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.

Input range	0.0000 - (max. page width) mm
-------------	-------------------------------

Y pos.

y-position within the permitted section.

Input range	0.0000 - (max. page height) mm
-------------	--------------------------------

Width

Width of image field.

Input range	0.0000 - (max. page width) mm
-------------	-------------------------------

Height

Height of image field.

Input 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.



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.

Entry	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.

Entry	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.

Input range	0.0000 - (max. page width) mm
-------------	-------------------------------

Y pos.

y-position within the permitted section.

Input range	0.0000 - (max. page height) mm
-------------	--------------------------------

Width

Width of date field.

Input range	0.0000 - (max. page width) mm
-------------	-------------------------------

Height

Height of date field.

Input 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.

Entry	50 characters
-------	----------------------

Suffix

Text placed after the date field contents.

Entry	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.

Input range	0.0000 - (max. page width) mm
-------------	-------------------------------

Y pos.

y-position within the permitted section.

Input range	0.0000 - (max. page height) mm
-------------	--------------------------------

Width

Width of time field.

Input range	0.0000 - (max. page width) mm
-------------	-------------------------------

Height

Height of time field.

Input 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.

Entry	50 characters
-------	----------------------

Suffix

Text to be placed after the contents of the time field.

Entry	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.

Input range	0.0000 - (max. page width) mm
-------------	--------------------------------------

Y pos.

y-position within the permitted section.

Input range	0.0000 - (max. page height) mm
-------------	---------------------------------------

Width

Width of the page number field.

Input range	0.0000 - (max. page width) mm
-------------	--------------------------------------

Height

Height of the page number field.

Input 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.

Entry	50 characters
-------	---------------

Suffix

Text placed after the page number field.

Entry	50 characters
-------	---------------



Bold.



Italic.



Underlined.



Left-justified.



Centered.



Right-justified.



Fills the field with dots.

Prefix

Text placed in front of the field contents.

Entry	50 characters
-------	----------------------

Suffix

Text placed after the field contents.

Entry	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.

Input range	0.0000 - (max. page height) mm
-------------	---------------------------------------

Width

Shows the predefined width of the fixed report.

Height

Height of fixed report.

Input 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**.

Entry	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.

Input range	0.0000 - (max. page height) mm
-------------	--------------------------------

Width

Shows the predefined width of the fixed report.

Height

Height of the field

Input range	0.0000 - (max. page height) mm
-------------	--------------------------------

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.

Input range	0.0000 - (max. page width) mm
-------------	-------------------------------

Y pos.

y-position within the permitted section.

Input range	0.0000 - (max. page height) mm
-------------	--------------------------------

Width

Width of image field.

Input range	0.0000 - (max. page width) mm
-------------	-------------------------------

Height

Height of image field.

Input 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.

Input range	0.0000 - (max. page width) mm
-------------	--------------------------------------

Y pos.

y-position within the permitted section.

Input range	0.0000 - (max. page height) mm
-------------	---------------------------------------

Length

Length of the line.

Input range	0.0 - (max. page width) mm
-------------	-----------------------------------

Angle

Angle of the line.

Input range	0 - 360.000 °
-------------	----------------------

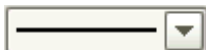
Thickness

Thickness of the line.

Input 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.

Input range	0.0000 - (max. page width) mm
-------------	-------------------------------

Y pos.

y-position within the permitted section.

Input range	0.0000 - (max. page height) mm
-------------	--------------------------------

Width

Width of the rectangle.

Input range	0.0000 - (max. page width) mm
-------------	-------------------------------

Height

Height of the rectangle.

Input range	0.0000 - (max. page height) mm
-------------	--------------------------------

Thickness

Thickness of the line for the rectangle.

Input 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.

Input range	0.0000 - (max. page width) mm
-------------	-------------------------------

Y pos.

y-position within the permitted section.

Input range	0.0000 - (max. page height) mm
-------------	--------------------------------

Width

Width of curve field.

Input range	0.0000 - (max. page width) mm
-------------	-------------------------------

Height

Height of curve field.

Command type

Selection	DET MET SET MEAS KFT KFC BRC STAT DOS
Default value	DET

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.



Selection	not defined 50 characters
Default value	not defined

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.

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.

Input range	0.0000 - (max. page width) mm
-------------	-------------------------------

Y pos.

y-position within the permitted section.

Input range	0.0000 - (max. page height) mm
-------------	--------------------------------

Width

Width of calibration curve field.

Input range	0.0000 - (max. page width) mm
-------------	-------------------------------

Height

Height of calibration curve field.

Input 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

4.4.2.1 Manage 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.

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

Shows the name of the template.

Shows the command type for which the template can be used.

Shows the comments about the template.

Generates a new template. The dialog window **Properties - Overlay curves** opens in which the properties for the new template can be defined.

Open the dialog window **Properties - Overlay curves** in which the properties of the template selected in the table can be edited.

Delete the template selected in the table.

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.

Entry	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.

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.

Entry	25 characters
Default value	auto

Scaling

Start value

Initial value for scaling the x axis.

Input range	-1.0 E12 - 1.0 E12
Default value	0.0

End value

End value for scaling the x axis.

Input 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 quantity to be shown on the y axis.

Selection	Command-dependent selection
Selection is based on the user's choice of a command. Selection is based on the user's choice of a command.	Selection is based on the user's choice of a command. Selection is based on the user's choice of a command.

Selection of the type of grid line.

Selection of the grid line color.

Selection of the color for automatically set endpoints.

Selects the color for manually set endpoints.

Selection of the color for the curve background.

Selection of the field separator.

Record separator

Selection of the data set separator (**CR** = Carriage return, **LF** = Line feed).

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.

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 179*), 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 4.4.2.1, page 179*) used.

File name

Name under which the export file is to be saved in 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" encoding="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.

</Acquisition>

– **<Version>**

<signOffState val=""/>

Information about the determination version.

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.

Message text.

Time at which the message was created in the run (date, time, UTC in the format **JJJJ-MM-TT hh:mm:ss UTC....**

Message title and number.

<msgText val=""/>

<msgTime val=""/>

<msgTitle val=""/>

</data>

</runMessages>

- **<DetermVars dynamic="">**

- **<data>**

<vt val=""/>

Determination variables

Determination variable

Variable type:

TX = Text

NR = Number

DT = Date/Time

NA = Unknown

Variable identification

Variable value.

<vn val=""/>

<vr val=""/>

</data>

</DetermVars>

- `<SystemVars dynamic="">`

- **<data>**

<vt val=""/>

System variables

System variable

Variable type:

TX = Text

NR = Number

DT = Date/Time

NA = Unknown

Variable identification

<vn val=""/>

<code><vr val=""/></code>	Variable value.
<code></data></code>	
<code></SystemVars></code>	
<code></Miscellaneous></code>	
<code>- <signOff dynamic=""></code>	Signatures
<code>- <data></code>	Signature
<code><subtype val=""/></code>	
<code>- <signature></code>	
<code><vr val=""/></code>	Shows at which level the determination has been signed (Level 1 or Level 2).
<code></signature></code>	
<code>- <signDate>...</signDate></code>	Date and time at which the determination was signed.
<code>- <userName>...</userName></code>	Short name of the user who signed the determination.
<code>- <userNameFull>...</userNameFull></code>	Full name of the user who signed the determination.
<code>- <reason>...</reason></code>	Reason for signature.
<code>- <comment>...</comment></code>	Comment on the signature.
<code></data></code>	
<code></signOff></code>	
<code></Determination></code>	

4.4.4.3.2 XML export - Method data

XML export

<code>- <Method></code>	Method data
<code>- <Identification></code>	Information about the identification of the method.
<code><methodName val=""/></code>	Name of the method.
<code><methodID val=""/>></code>	Method ID: Unambiguous and unmistakable identification for the method.
<code><methodComment val=""/></code>	Method comment (Command comment on START command).

</Identification>

– <Version>

<signOffState val=""/>

Information about method version.

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>	<i>see above</i>
</SmplSize>	
– <SmplUnit>	Sample size unit.
– <data>...</data>	<i>see above</i>
</SmplUnit>	
</SmplData>	
– <Identification>	Sample identifications.
– <ID__01>	Sample identification ID1.
– <data>...</data>	<i>see above</i>
</ID__01>	
– <ID__02>	<i>see above</i>
</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 (<i>see above</i>).
<vt val="" />	Variable type (<i>see above</i>).
<vn val="" />	Variable name.

<code></data></code>	
<code></fv></code>	
<code>- <sme></code>	Mean value of the result.
<code>- <data></code>	
<code><vr val="" /></code>	Mean value with the number of decimal places defined in the CALC command.
<code><vf val="" /></code>	Mean value with full precision.
<code><vs val="" /></code>	Variable status (<i>see above</i>).
<code></data></code>	
<code><sme></code>	
<code>- <abs></code>	Absolute standard deviation of the result.
<code>- <data></code>	
<code><vr val="" /></code>	Absolute standard deviation with the number of decimal places defined in the CALC command.
<code><vf val="" /></code>	Absolute standard deviation with full precision.
<code><vs val="" /></code>	Variable status (<i>see above</i>).
<code></data></code>	
<code><abs></code>	
<code>- <rel></code>	Relative standard deviation of the result.
<code>- <data></code>	
<code><vr val="" /></code>	Absolute standard deviation with the number of decimal places defined in the CALC command.
<code><vf val="" /></code>	Relative standard deviation with full precision.
<code><vs val="" /></code>	Variable status (<i>see above</i>).
<code></data></code>	

<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>**

- **<data>**

<vr val="" />

<vf val="" />

<vs val="" />

</data>

<abs>

– **<rel>**

- **<data>**

<vr val="" />

<vf val="" />

<vs val=""/>

</data>

<rel>

– **<max>**

- **<data>**

<vr val="" />

<vf val="" />

<vs val=""/>

</data>

 $\langle /max \rangle$

– **<min>**

- **<data>**

<vr val="" />

<vf val="" />

</data>

<n val="" />

<nmax val="" />

Absolute standard deviation of the result.

Absolute standard deviation with the number of decimal places defined in the CALC command.

Absolute standard deviation with full precision.

Variable status (*see above*).

Relative standard deviation of the result.

Absolute standard deviation with the number of decimal places defined in the CALC command.

Relative standard deviation with full precision.

Variable status (*see above*).

Number of the result among the statistically evaluated results.

Maximum number of statistically evaluated results.

```

</data>
<RS01>
<RS02> ... <RS25>
</ResultsSingle>

```

Further single results (*see above*)

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.

```


<<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>	


```

</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>

– <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.

<code><sensorCalTemp val="" /></code>	Calibration temperature.
<code><sensorCalDate val="" /></code>	Calibration date.
<code><sensorCalMethod val="" /></code>	Calibration method.
<code><sensorCalUser val="" /></code>	User
<code><sensorCalMeasInput val="" /></code>	Measuring input at calibration.
<code></sensorData></code>	
<code></Sensor></code>	
<code></usedSensors></code>	

4.4.4.3.10 XML export - Statistical data

XML export

<code>- <Statistics></code>	Statistical data
<code><subtype val="" /></code>	
<code><nMax val="" /></code>	Maximum number of statistically evaluated results.
<code>- <StatisticsShort dynamic=""></code>	Statistical data on the separate results.
<code>- <data></code>	
<code><subtype val="" /></code>	
<code>- <resName></code>	
<code><vr val="" /></code>	Result name.
<code><vf val="" /></code>	
<code></resName></code>	
<code>- <n> ... </n></code>	Number of the result among the statistically evaluated results.
<code>- <sme> ... </sme></code>	Mean value of the result.
<code>- <un> ... </un></code>	Result unit.
<code>- <abs> ... </abs></code>	Absolute standard deviation of the result.
<code>- <rel> ... </rel> ...</code>	Relative standard deviation of the result.
<code>- <min> ... </min> ...</code>	Minimum value of the result.
<code>- <max> ... </max> ...</code>	Maximum value of the result.
<code></data></code>	

In the determination table it is not possible to show more than 200 determinations at once. If more than 200 records 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 **Column display** dialog window. Here the columns that are to be shown in the determination table can be defined.

Available columns

Display of all the fields that can be shown as columns in the determination table.

Displayed columns

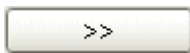
Display of all the fields that will be shown as columns in the determination table.

Default name

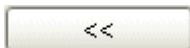
Non-editable name of the field that is displayed as a column.

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.



Moves selected column upwards.



Moves selected column downwards.

4.5.1.4

Subwindow: **Database ▶ Determination overview**

Filter

Selection of the filter with which the determination table is to be filtered:

Selection	All determinations All statistical records Quick filter Temporary filter Filter name
Default value	All determinations

All determinations

The table is shown unfiltered.

All statistical records

The table is filtered so that all determinations are shown that are statistically linked 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**

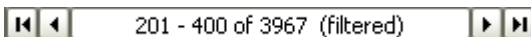
All

All determinations are shown for all statistics series.

Last

Only the last determination is shown for each statistics series.

4.5.1.5

Subwindow: **Database ▶ Determination overview**

The navigation bar shown below the determination table is used for navigation in extensive tables in which all the determinations can no longer be displayed simultaneously. It contains the following elements:



Jump to the first set of determinations in the table.



Jump back to the previous set of determinations in the table.

201 - 400 of 3967 (filtered)

Display of the selected set ##### - ##### of determinations in the table. If the table is not filtered, then the total number of all determinations will also be shown. If the table is filtered, then the total number of filtered determinations will appear with the additional information **(filtered)**.



Jump further to the next set of determinations 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**

The vertical and the horizontal scroll bars can be used to navigate in the determination table with the mouse. In addition the following options are available with 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]

Scrolls backward within the current set.

[Page Down]

Scrolls forward within the current set.

[Alt] [End]

Jumps to last determination (of all).

[Alt] [Home]

Jumps to first determination (of all).

Jumps to first record of previous set.

Jumps to first record 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.

Subwindow: **Database ▶ Determination overview**

The determinations selected in the table are displayed in **turquoise**; the focused determination, the data of which is displayed in the other sub-windows, is marked with an arrow before the line number. The first determination is always selected and focused when a database is opened.

The following possibilities are available for the selection of determinations in the determination table:

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 marked with an arrow in front of the line number.

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.

In order to select several determinations not in sequence, the individual determinations must be selected by left-clicking on them while holding down the **Ctrl key**. The last determination to be selected receives the focus.

With **[Ctrl] [A]** or by clicking on the uppermost left-hand table cell, 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**

The following functions can be carried out with the determinations selected in the determination table:

Editing determinations

- *Updating the determination overview*
- *Entering a determination comment*
- *Signing determinations*
- *Exporting determinations*
- *Importing determinations*
- *Sending determinations to*
- *Reprocessing determinations*
- *Deleting determinations*

Searching and filtering determinations

- *Search determinations*
- *Filter determinations*

Other functions

- *Determination overview - Print*
- *Printing a report*
- *Displaying determination history*
- *Determinations - Control chart*
- *Determinations - Overlay curves*
- *Printing overlaid curves*
- *Printing a 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

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 sub-window **Information**.

4.5.2.3

Dialog window: **Database ▶ Determinations ▶ Search... ▶ Search - Database**

The **Determinations ► Search...** menu item or the  symbol opens the **Search - Database** dialog window for the search for determinations.

Search in

Selection of the data field in which the search is to be carried out.

Selection **All fields** | 'Field name'

All fields

A search is made in all fields of the database.

'Field name'

A search is made only in the selected field. The 10 most recently selected fields are always available for selection.

[Other...]

Open the **Search - Field selection** dialog window. All fields are listed in tree form. A field can be included in the search by highlighting it and closing the dialog window with **[OK]**.

Details

Depending on the data field, further list boxes are dynamically created under Details in order to be able to select the desired property.

Search options

Type

Selection of the type of format for fields in which several types are possible. Only this type will be shown for fields with a fixed type.

Selection	Text Date Number
Default value	Text

^?

Wildcard for any character.

^#

Wildcard for any digit.

^\$

Wildcard for any letter of the alphabet.

^*

Wildcard for any character string.

for fields of the type = date

Entry	all possible date values Definition of a date as search term. The last 10 search terms are saved and can be selected.
-------	---

for fields of the type = date and operator = today

Input range	-9,999 - 9,999
Default value	0 Definition of a numerical value as a range in days in which, starting from the current date, the search is to be carried out. The last 10 search terms are saved and can be selected.

for fields of the type = number

Entry	all possible numerical values Definition of a numerical value as search term. The last 10 search terms are saved and can be selected.
-------	---

Search direction

Selection of the search direction.

Selection	All Down Up
Default value	All

All

A search is made down to the end of the database and then again from above down to the selected record.

Down

A search is made to the end of the database.

Up

A search will be made to the beginning of the database.

Match case**on | off** (Default value: **off**)If this check box is activated, then the search in fields of the **Text** type is case-sensitive.



Search for whole word only

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

If this check box is activated, then the field contents must be identical with the search term during searches in **Text** fields (no part-search).

[Find next]

Search next occurrence of the search term.

4.5.2.4 Filtering determinations

4.5.2.4.1 Filtering determinations - Overview

Subwindow: **Database ▶ Determination overview**

The following possibilities exist for filtering determinations in the determination table:

- Filter selection in the filter bar
- Quick filter
- Special filter
- Last filter
- Remove filter

4.5.2.4.2 Determinations - Last filter

Menu item: **Database ▶ Determinations ▶ Filter ▶ Last filter**

The most recently used filter is reactivated with the **Determinations ► Filter ► Last filter** menu item or the  symbol.

4.5.2.4.3 Determinations - Quick filter

Menu item: **Database ▶ Determinations ▶ Filter ▶ Quick filter**

The **Determinations ► Filter ► Quick filter** menu item or the  symbol can be used to carry out a quick filtering for the content of the selected tabular field. After this function has been selected, the field in the determination table in which the cursor is located will have a colored background during navigation. At the same time, the following special filter symbol appears:



By double-clicking with the left mouse button you can set the content of the selected field as filter criterion and apply it directly to the table.



Note

The quick filter can be applied again within the filtered table, so that the number of entries can be limited step by step.

4.5.2.4.4

Dialog window: **Database ► Determinations ► Filter ► Special filter... ► Special filter - Database "Database name"**

The **Determinations** ► **Filter** ► **Special filter...** menu item or the  symbol is used to open the **Special filter - Database** dialog window for defining user-specific filters.

Filter

Selection of the filter to be loaded for editing.

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 **Save filter** dialog window in which the filter criteria entered in the table can be saved as a special filter under the required name.

[Delete filter]

The currently loaded special filter is deleted.

Table view

The overview table shows all the defined filter criteria and cannot be directly edited. The filter criteria will be numbered automatically in sequence. The table view can be adapted with the left 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

If the content of a field is larger than the column width, then the entire content 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 **[Edit]** menu beneath the filter table contains the following menu items:

Edit line	Opens the Edit filter criterion dialog window 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 Edit filter criterion dialog window opens automatically.
Cut lines	Transfers the selected lines to the clipboard.
Copy lines	Copies the selected lines to the clipboard.
Insert lines	Pastes lines from the clipboard above the selected line.
Delete lines	Deletes the selected lines.

[Apply filter]

Applies filter criteria to the determination table.

4.5.2.4.5 Determinations - All statistical records

Menu item: **Database ► Determinations ► Filter ► All statistical records**

With the **Determinations ▶ Filter ▶ All statistical records** menu item or the  symbol all determinations statistically linked with the selected determination are displayed.

4.5.2.4.6 Determinations - Deleting a filter

Menu item: **Database ▶ Determinations ▶ Filter ▶ Delete filter**

With the **Determinations** ► **Filter** ► **Delete filter** menu item or the  symbol the most recently used filter will be deleted and all determinations will be displayed.

4.5.2.4.7 Determinations - Saving a filter

Dialog window: **Database ► Determinations ► Filter ► Special filter... ► Special filter - Database "Database name" ► [Save filter] ► Save filter**

The **[Save filter]** button in the **Special filter - Database "Database name"** dialog window opens the **Save filter** dialog window 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.

Entry	50 characters
-------	---------------

[Save]

Saves the filter under the given name.



The filters are saved globally in the configuration database and are therefore available for all clients.

4.5.2.4.8 Determinations - Editing the filter criterion

Dialog window: **Database ► Determinations ► Filter ► Special filter ► Special filter**
- Database "Database name" ► [Edit] ► Edit line ► Edit filter criterion 'Filter name'

The **Edit ► Edit line** command in the **Special filter - Database "Database name"** dialog window opens the **Edit filter criterion #** dialog window, in which the filter criterion selected in the filter table can be edited.

Link

Selection of the type of link (logical operator) with the preceding filter criterion.

Selection	AND OR
Default value	AND

AND

Logical "AND" link.

OR

Logical "OR" link.

Field

Selection of the data field for which a criterion 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 **Filter - Field selection** dialog window. Herein all fields that can be used for filtering are listed in tree form. A field can be included by highlighting it and closing the dialog window with **[OK]**.

Details

Depending on the data field, further list boxes are dynamically 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. Only this type will be shown for fields with a fixed type.

Selection	Text Number Date
Default value	Text

Operator

Selection of the comparison operator for the filter criterion.

For fields of the type = text

Selection	=	<>
Default value	=	

For fields of the type = date

Selection	= <> < <= > >= Today
Default value	=

Today

A search is made for the current date. In the **Comparative value** field, a range in days can also be defined, according to which filtration should be carried out, starting from the current date.

For fields of the type = number

Selection	= <> < <= > >= empty not empty invalid out of limits
Default value	=

invalid

Values with the entry **invalid** are filtered for.

out of limits

Values that are outside of the defined limit values for the selected fields are 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 on [...] in the **Select date** dialog window.

For fields of the type = text

Entry	256 characters Definition of a text expression as comparative value. * can be used as a wildcard for any string of characters if the option Use asterisk (*) as wildcard is enabled.
-------	--

<i>For fields of the type = date</i>	
Entry	all possible date values Definition of a date as comparative value.
<i>For fields of the type = date and operator = today</i>	
Input range	-9,999 - 9,999
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.
<i>For fields of the type = number</i>	
Entry	all possible numerical values Definition of a numerical value as comparative value.

Match case

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

If this check box is activated, then the filtering of fields of the **Text** type is case-sensitive.

Use asterisk (*) as wildcard

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

If this check box is activated then the asterisk * can be used as a wildcard for any character strings when filtering **Text**-type fields.

4.5.2.5 Signing 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**
Determinations can be signed at two levels (signature level 1 and signature level 2) by entering the user name and a password.
- **Multiple signing**
Determinations can be signed several times at each level.
- **Signing at level 1**
If level 2 has been signed, then no more signatures are possible at level 1.
- **Signing at level 2**
Level 2 cannot be signed unless there are already signatures on level 1.
- **Different users**
The same user may not sign on both level 1 and level 2.



- **Reason and comment**
Each signature must be accompanied by a reason selected from predefined default reasons. An additional comment can also be entered.
- **Saved data**
Signature date, user name, full name, reason and comment are saved for each signature.
- **Deleting signatures 1**
Signatures at level 1 are automatically deleted when a new version is created.
- **Deleting signatures 2**
Signatures at level 2 can be deleted by users who have the respective permission.
- **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 that have been signed at level 1 can be modified and deleted. If the modified method or determination is saved as a new version, however, then all existing signatures will be deleted automatically, i.e. the method or determination must be signed once again.

Info

Display of information for signing and deleting signatures. The following messages are possible:

Selection	Signature possible (signature 2 exists)	Signature 1 not possible (access by other client)	Signature not possible for multiple determinations
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			

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.

The selected determination cannot be signed as it is already marked to be signed on a different client.

Several determinations have been selected; they may, however, only be signed individually.

Entry of the user name (short name).

Entry	24 characters
-------	---------------

Entry of the password.

Entry	24 characters
-------	---------------

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

Selection	Selection from the default reasons
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50
51	51
52	52
53	53
54	54
55	55
56	56
57	57
58	58
59	59
60	60
61	61
62	62
63	63
64	64
65	65
66	66
67	67
68	68
69	69
70	70
71	71
72	72
73	73
74	74
75	75
76	76
77	77
78	78
79	79
80	80
81	81
82	82
83	83
84	84
85	85
86	86
87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99

Entry of a comment on the signature.

Entry	1,000 characters
-------	------------------

Sign the determination. The window remains open.



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

**Dialog window: Database ▶ Determinations ▶ Sign ▶ Signature
2... ▶ Signature level 2**

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

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 .

[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]** ▶ **Modify 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 68).

Input range	-1.0 E+99 - 1.0 E+99 (max. 15 digits) (for Type = Number)
Entry	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 ▶ Modifica-
tions ▶ 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.

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.

4.5.2.6.5.2 Result view - Raw data

Tab: **Database** ▶ **Determinations** ▶ **Reprocess...** ▶ **Reprocessing** ▶ **Result display** ▶ **Raw data**

On the **Raw data** tab of the **Result view** subwindow 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 the result view of the individual determinations:



Jump to the first determination.



Jump to the previous determination.



Jump to the next determination.



Jump to the 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.

Entry	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 the **Determinations ► Export...** menu item to open the **Export determinations** dialog window for exporting the selected determinations.

Selection

Selection of determinations for the 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 (highlighted) in the determination table.



All filtered data records

All the determinations from the determination table as a whole that correspond to the set filter are exported.

Export template

Selection of the export template for the data export.

Selection	'Export template'
-----------	-------------------

4.5.2.9 Importing determinations

Dialog window: **Database ► Determinations ► Import... ► Import determinations**

The **Determinations ► Import...** menu item opens the **Import determinations** dialog window, in which the determinations to be imported must be selected. These determinations are then imported into the open database.



Note

Supported file formats:

- ***.txt** (PC/LIMS report)
- ***.tdet** (tiBase format)
- ***.utf8** (Unicode)

4.5.2.10 Deleting determinations

Menu item: **Database ► Determinations ► Delete**

The selected determinations are deleted after the confirmation request with the  symbol or the **Determinations ► Delete** menu item.



Note

If a database is opened simultaneously on several clients and if determinations are deleted on a client, then these will continue to be shown on the other clients in the determination table until the table is updated. All the fields of these determinations will then have the entry **deleted**.



Note

If the **Comment on modification of determinations** check box in the **Security settings** is activated, then the **Modification comment determination** window will appear before the modification is saved.

4.5.2.11

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

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 **Determinations, Show calibration curve...** menu item or the  symbol the calibration or standard addition curve is shown for the determination selected in the **Calibration curve** dialog window.

Calibration curve for CAL LOOP pH

In the **Calibration curve** dialog window 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 **Calibration curve** dialog window a tab marked with the command name showing the calibration curve and calibration data will be displayed for each CAL LOOP Conc command. 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

4.5.2.17 Determinations - Overlay curves

Menu item: **Database ▶ Determinations ▶ Overlay curves... ▶ Overlay curves**

Template

Selection	Standard "Template" Last saved template
Default value	Last saved template If a new template is selected then the display will be updated automatically.



Command name

Selection	"Command" This selection is only necessary if the method contains several commands of the same Command type.
-----------	--

Opens the **Curve overlay templates** dialog window.

Graph display

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 identifying the curves if the same command has been executed several times during a determination.

[Print (PDF)]

Opens the **Print curves (PDF)** (see Chapter 4.5.2.18, page 256) dialog window. The content of the curve overlay with legend can be shown as a PDF file in the required format.

4.5.2.18 Printing overlaid curves

Dialog window: **Database ▶ Determinations ▶ Overlay curves... ▶ Overlay curves ▶ [Print (PDF)] ▶ Print curves (PDF)**

With **[Print (PDF)]** in the **Overlay curves** dialog window, the **Print curves (PDF)** dialog window is opened.

Orientation

Selection	Portrait format Landscape format
Default value	Landscape format

Portrait format

Produces the control chart in portrait format.

Landscape format

Produces the control chart in landscape format.

Comment

Possibility of entering comments on the control chart which will be produced together with the control chart.

Entry	1,000 characters
-------	------------------

[OK]

Close the dialog window. The control chart is produced 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 print-out 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.

Possibility of entering comments on the control chart which will be produced together with the control chart.

[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.

4.6.1 Information - Overview

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 occurred.

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
-----------	----------	----------

Determination data unaltered.

Determination data modified.

Version of the determination. The unaltered original determination has the version number **1**, reprocessed determinations have a version number **>1**.

Date and time when the reprocessed determination version was saved.

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 1.1 will be displayed here.

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.

Reason for the determination modification.

User comment on the determination modification.

Information about the signatures at Level 1 or Level 2 in chronological order.

Date and time at which the determination was signed.

Short name of user who signed the determination.

Full name of user who signed the determination.

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).

Temperature during the calibration.

Shows the method with which the calibration was carried out.

Shows the user logged in during the calibration or who entered the calibration data manually.

Electrode zero point of the sensor used (in mV only for ISE).

Blank value of the ISE sensor used.

Cell constant of the conductivity sensor used.

Information about the common variable used.

Value and unit of the common variables at the start of the determination.

Tab: **Database** ▶ **Information** ▶ **Messages**

Shows messages generated during the determination run.

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.....**).

Shows the message title and number.

Shows from where the message comes:

For each **CALC** command a results overview is shown according to the following pattern:

Name of the **CALC** command.

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.

Shows the result name and result value with the defined number of decimal places and units.



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.

Shows the mean value for statistically evaluated results.

Shows the absolute standard deviation for statistically evaluated results.

Shows the relative standard deviation for statistically evaluated results.

Shows the minimum value for statistically evaluated results.

Shows the maximum value for statistically evaluated results.

Shows the number of measurements for statistically evaluated results.

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

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

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

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

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

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

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

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

Column 2: Variable	Column 3	Column 4	Column 5	Column 6
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, "empty", 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			
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	

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 Curves subwindow

4.8.1 Curves - General

Subwindow: **Database ► Curves****Curves subwindow**

The **Curves 1 - 5** subwindows are subwindows in the **Database** program part. In these subwindows, 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 (after a certain time delay).

The **Curves 1 - 5** subwindows can be switched on in the **Database** program part and thus made visible when the layout is defined. They can be enlarged and reduced as required, and 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 run of a measuring command; their sequence is determined by the method.

Display of 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 by double-clicking on the section of the graph or with the context-sensitive **Show All** menu command.

The **Backup database 'Database name'** dialog window opens.

- 5 Select the directory for the backup in the **Backup directory** field.
- 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 the data is restored.

- 7** Click on **[Start]**.

The manual backup of the database is started and the database is backed up to the selected directory.

Backing up a database automatically

- 1** Select **Database** program part.

- 2** Click on the  symbol or the **File ► Database manager...** menu item.

The **Database manager** dialog window opens.

- 3** Select desired database and click on **[Properties]**.

The **Properties - Database - 'Database name'** dialog window opens for editing the database properties.

- 4** On the **General** tab, enter a comment on the database in the **Comment** field.

- 5 On the **Backup** tab, enable the **Backup monitoring** check box.

- 6** Enter an **Interval** for backup monitoring or a date for the next backup in the **Next backup** field.

- 7** Activate the **Start backup automatically** check box.



- 8** Select the directory for the backup in the **Backup directory** field.

- 9** Click on **[OK]**.

The **Properties - Database** dialog window closes and the database will be backed up automatically to the selected directory at the desired time.

5.1.2 Restoring the database

How to proceed?

- 1** Select **Database** program part.

- 2** Click on the  symbol or the **File ► Database manager...** menu item.

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** field in which the desired database was backed up.

- 5 Select 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 restored under its old name.

How to proceed?

The manual backup is started and the configuration database is backed up to the selected directory.

Backing up configuration data automatically

- 1 Select **Configuration** program part.
- 2 Click on the **File ► Backup ► Automatically** menu item.
The **Backup configuration data automatically** dialog window opens.
- 3 Activate the **Automatic backup** check box.
- 4 Enter an **Interval** for backup monitoring or a date for the next backup in the **Next backup** field.
- 5 Select the directory for the backup in the **Backup directory** field.
- 6 Click on **[OK]**.

The **Backup configuration data automatically** dialog window closes and the configuration database will be backed up automatically to the selected directory at the desired time.

5.1.4 Restoring configuration data

How to proceed?

tiBase full

- 1 Exit **tiBase**.
- 2 Start the **ConfigRestore.exe** file in the **...\tiBase\bin** program directory.

The **Restore configuration data** dialog window 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.

tiBase multi

- 1 Make sure that **tiBase** is closed on all clients connected to the server and on the server itself.
- 2 Start the **ConfigRestore.exe** file in the **...\tiBase\bin** program directory on the server.

The **Restore configuration data** dialog window 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 Searching for determinations

How to proceed?

- 1 Select **Database** program part.
- 2 Click on the  symbol or the **File ► Open...** menu item.
The **Open database** dialog window opens.
- 3 Select desired database or enter name in the **Database name** field.
- 4 Click on **[Open]**.

The data sets of the selected database are displayed in the **Determination overview**.

- 5 Click on the  symbol or the **Determinations ► Find...** menu item.

The **Search - Database 'Database name'** dialog window opens.

- 6** Enter or select desired search terms and search options.

- 7** Click on **[Search next]**.

The next determination containing the search term is highlighted in the **Determination overview**.

5.2.2 Filtering determinations

How to proceed?

Opening a database

- 1** Select **Database** program part.

- 2 Click on the symbol or the **File ► Open...** menu item.

The **Open database** dialog window opens.

- 3** Select desired database or enter name in the **Database name** field.

- 4** Click on **[Open]**.

The data sets of the selected database 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 mouse button.

The contents of the field selected in the table will be set as a filter criterion and this filter will be applied directly to the table.



Defining and using special filter

- 5** Click on **[Apply filter]**.

Using special filter

- The table will be filtered.

5.2.3 Signing determination

Selecting a determination

- 2 Click on the symbol or the **File ► Open...** menu item.

The **Open database** dialog window opens.

- 3** Select desired database or enter name in the **Database name** field.

- 4** Click on **[Open]**.

The data sets of the selected database 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 permission (*see Chapter 3.2.1.2.3, page 78*).

- 1** Click on the  symbol or **Determinations** ► **Sign** ► **Signature** 1... menu item.

The **Signature Level 1** window opens. If the selected determination can be signed, **Signature possible** is displayed in the **Info** field.

- 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 permission (*see Chapter 3.2.1.2.3, page 78*).

- 1 Click on the  symbol or the **Determinations ► Sign ► Signature 2...** menu item.

The **Signature Level 2** window opens. If the selected determination can be signed, **Signature possible** is displayed in the **Info** field.

- Enter or select **User**, **Password**, **Reason** and **Comment** and click on **[Sign]**.

The selected determination will be signed on level 2.



 **Note**

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

5.2.4 Exporting determinations

How to proceed?

Defining export templates

- 1** Select **Database** program part.

- 2 Click on the **Tools ► Templates ► Export templates...** menu item.

The **Export templates** window 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 closes.
- 6 Click on **[Close]**.
The **Export templates** dialog window closes.

Selecting determinations

- 1 Select **Database** program part.
- 2 Click on the  symbol or the **File ► Open...** menu item.
The **Open database** dialog window opens.
- 3 Select desired database or enter name in the **Database name** field.
- 4 Click on **[Open]**.
The data sets of the selected database are displayed in the **Determination overview**.
- 5 Select desired determinations.

Exporting determinations

- 1 Click on the **Determinations ► Export...** menu item.
The **Export determinations** window opens.
- 2 In the **Selection** field, select the desired option (**All records** or **Selected records**).
- 3 In the **Export template** selection list, select an export template.
- 4 Click on **[OK]**.
The selected determinations are exported into the directory defined in the export template.

- 4** Click on **[Open]**.

The data sets of the selected database are displayed in the **Determination overview**.

- 5** Select desired determinations.

- 6 Click on the symbol or the **Determinations** ► **Delete** menu item.

- 7** Confirm deleting.

The selected determinations are deleted along with all **Determination versions**.



Note

If the **Comment on modification of determinations** option in the **Security settings** is enabled, then the **Modification comment determination** window will appear before the modification is saved.

5.2.7 Making the determination version current

How to proceed?

- 1** Select **Database** program part.

- 2 Click on the  symbol or the **File** ► **Open...** menu item.

The **Open database** dialog window opens.

- 3** Select desired database or enter name in the **Database name** field.

- 4** Click on **[Open]**.

The data sets of the selected database are displayed in the **Determination overview**.

- 5** Select desired determination.

- 6** Click on the  symbol or the **Determinations ► Show history...** menu item.

Select desired determination that is once again to be made the current determination version.

- 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.

How to proceed?



Determinations signed at level 2 cannot be reprocessed.

- 1 Select **Database** program part.
- 2 Click on the  symbol or the **File ► Open...** menu item.
- 3 Select desired database or enter name in the **Database name** field.
The data sets of the selected database are displayed in the **Determination overview**.
- 4 Select desired determinations.
- 5 Click on the  symbol or the **Determinations ► Reprocess...** menu item.
The **Reprocessing** dialog window opens. The first of the selected determinations is displayed.

1 Select the **Variables** tab.

- On the **Monitoring** tab, define the monitoring of the size and number of data sets.

5.3.5 Backing up a database

How to proceed?

Backing up a database manually

- 1 Select **Database** program part.
- 2 Click on the  symbol or **File ► Database manager...** menu item.
The **Database manager** window opens.
- 3 Click on **[Backup]**.
The **Backup database** window opens.
- 4 Select the directory for the backup in the **Backup directory** field.
- 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 data is restored.

- 6** Click on **[Start]**.
- The manual backup is started and the database is backed up to the selected directory.

Backing up a database automatically

- 1 Select **Database** program part.
 - 2 Click on the  symbol or the **File ► Database manager...** menu item.
- The **Database manager** dialog window opens.

- The **Properties - Database - 'Database name'** dialog window opens for editing the database properties.

How to proceed?

- Click on the  symbol or the **File ► Database manager...** menu item.

- 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 restored under its old name.

5.3.7 Deleting a database

How to proceed?

- 1** Select **Database** program part.

- 2 Click on the symbol  or **File ► Database manager...** menu item.

The **Database manager** dialog window opens.

- 3** Select desired database.

- 4** Click on the **Edit ► Delete...** menu item.

The selected database is deleted.



Note

Databases that are open cannot be deleted.

5.4.3 Importing configuration data

How to proceed?

- 1 Select **Configuration** program part.
- 2 Click on the **Import ► file...** menu item.
The **Open** dialog window opens.
- 3 Select or enter a new name and directory for the ***.mcfg** import file.
- 4 Click on **[Open]**.
The **Import configuration data** dialog window 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 **Configuration** program part.
- 2 Click on the **File ► Backup ► Manually** menu item.
The **Backup configuration data manually** dialog window opens.
- 3 Select the directory for the backup in the **Backup directory** field.

- 

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 data is restored.

- The manual backup is started and the configuration database is backed up to the selected directory.

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 **ConfigRestore.exe** file in the **...\tiBase\bin** program directory.

The **Restore configuration data** dialog window 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 **ConfigRestore.exe** file in the **...\\tiBase\\bin** program directory on the server.

The **Restore configuration data** dialog window 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.

5.5.1 Import - automatic

1 Select **Configuration** program part.

- 2 In the **Import processes** subwindow, click on the **Edit ▶ New** menu item.

The **Properties import process** dialog window opens.

3 Enter the name of the import process.

4 Click on the symbol.

The **Select directory** dialog window 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 **Data source** field.

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, then activate the **Start automatically** check box.

If the check box is deactivated, then the PC/LIMS reports have to be imported manually.

10 Activate the **Delete file** radio button if the PC/LIMS reports are to be deleted in the source directory after the import into the tiBase database.

- 11 Activate the **Move file** radio button 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 **Select directory** dialog window opens.

- 13** Select the folder (create new) to which the PC/LIMS reports are to be moved.

- 14** Click on **[Select]**.

The path is entered in the **Directory** field.



Note

Faulty determination data

Faulty data are saved to a sub-directory during the automatic import. The import of the additional data then continues.

5.5.2 Import - manual

How to proceed?

- 1** Select **Database** program part.

- 2 Click on the **Determinations ► Import....** menu item or the  symbol.

The **Import determinations** dialog window opens.

- 3** Select the PC/LIMS reports.

- 4** Click on **[Open]**.

5.5.3 Editing the import

How to proceed?

- 1** Select **Configuration** program part.

- 2** In the **Import processes** subwindow, click on the **Edit ▶ New** menu item.

The **Properties Import process** dialog window opens.

- 3** Edit the name of the import process.

- 4** Click on the  symbol.

The **Select directory** dialog window opens.

- 5** Select the folder with the PC/LIMS reports to be imported to the database.
- 6** Click on **[Select]**.
The path is entered in the **Data source** field.
- 7** Enter a comment (optional).
- 8** If importing the PC/LIMS reports is to run automatically at the start of tiBase, then activate the **Start automatically** check box.
If the check box is deactivated, then the PC/LIMS reports have to be imported manually.
- 9** Activate the **Delete file** radio button if the PC/LIMS reports are to be deleted in the source directory after the import into the tiBase database.
- 10** Activate the **Move file** radio button 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 **Select directory** dialog window opens.
- 12** Select the folder (create new) to which the PC/LIMS reports are to be moved.
- 13** Click on **[Select]**.
The path is entered in the **Directory** field.

5.5.4 Import - one USB flash drive

How to proceed?

Defining the properties of the import

- 1** Select **Configuration** program part.

The PC/LIMS reports are saved on a USB flash drive by the Titrino plus.

- tiBase imports the PC/LIMS reports directly from the USB flash drive.

How to proceed?

9 Confirm with **[OK]**.



Note

If the USB flash drive is used on another PC, then the drive letter must be checked.

Assigning a drive letter - Windows Vista

- 1 Connect the USB flash drive to the PC.
- 2 Click on **Start ► Computer**.
- 3 Click on the **Administration** menu item.
The **Computer administration** dialog window opens.
- 4 Click on **Storage device administration**.
- 5 In the list of storage devices, right-click on the drive letter of the USB flash drive.
- 6 In the context menu, click on **Modify drive letter and paths**.
The **Modify drive letter and path for 'Name'** dialog window opens.
- 7 Click on **[Modify...]**.
- 8 Select a new drive letter in the selection list.
The new drive letter must not be in use. This also includes a USB flash drive which is not connected.
- 9 Confirm with **[OK]**.



Note

If the USB flash drive is used on another PC, then the drive letter must be checked.

- 1 Select **Configuration** program part.
- 2 In the **Import processes** subwindow, click on the **Edit ► New** menu item.

3 Enter the name of the import process.

The **Select directory** dialog window opens.

6 Click on **[Select]**.

7 Select the database in which the PC/LIMS reports are to be saved.

9 If importing the PC/LIMS reports is to run automatically at the start of tiBase, then activate the **Start automatically** check box.

10 Activate the **Delete file** radio button if the PC/LIMS reports are to be deleted in the source directory after the import into the tiBase database.

11 Activate the **Move file** radio button if the PC/LIMS reports are to be moved from the source directory to another directory after the import into the tiBase database.

The **Select directory** dialog window opens.

- 13** Select the folder (create new) to which the PC/LIMS reports are to be moved.

- 14** Click on **[Select]**.

The path is entered in the **Directory** field.

Importing with USB flash drive

The PC/LIMS reports are saved on a USB flash drive by the Titrino plus.

- 1** Connect the USB flash drive to the PC.

tiBase imports the PC/LIMS reports directly from the USB flash drive.

5.5.6 Import - via RS Server

How to proceed?

Configuring analysis instrument

Installing RS Server

- ## 1 Install RS Server by downloading it from ...

- 2 With the right mouse button, click on the  symbol in the status bar.

- 3** Select RS Server settings.

- 4** Click on **[New]**.

- 5** In the **Target directory** field, select the directory in which the PC/LIMS reports sent by the analysis instrument are stored.

- 6** In the **Autostart** part, activate the **Automatically start with Windows** check box.

- 7** Click on **[OK]**.

Defining the import process

- 1 Select **Configuration** program part.
- 2 In the **Import processes** subwindow, click on the **Edit ► New** menu item.
The **Properties import process** dialog window opens.
- 3 Enter the name of the import process.
- 4 Click on the  symbol.
The **Select directory** dialog window 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 **Data source** field.
- 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, then activate the **Start automatically** check box.
If the check box is deactivated, then the PC/LIMS reports have to be imported manually.
- 10 Activate the **Delete file** radio button if the PC/LIMS reports are to be deleted in the source directory after the import into the tiBase database.
- 11 Activate the **Move file** radio button 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 **Select directory** dialog window opens.



- 13** Select the folder (create new) to which the PC/LIMS reports are to be moved.

- 14** Click on **[Select]**.

The path is entered in the **Directory** field.

5.5.7 Import protocol - properties

How to proceed?

- 1** Select **Configuration** program part.

- 2 In the **Import protocol** subwindow, click on the **Edit ► Options...** menu item.

The **Properties Import protocol** dialog window opens.

- 3** Activate the check box for the required filter options.

- 4** Enter the required maximum number of log entries.

- 5** Click on **[OK]**.

5.5.8 Deleting an import protocol

How to proceed?

- 1** Select **Configuration** program part.

- 2 In the **Import protocol** subwindow, click on the **Edit ► Delete all messages** menu item.

5.6.1 Creating report template

1 Select program part **Database**.

2



A database must be open in order to carry out subsequent steps.

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 reports of the selected determination are put out.

How to proceed?

- The dialog window **Open database** opens.

- 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.



- The dialog window **Print determination overview (PDF)** opens.

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