

# 848/877 Titrino plus



## Tutorial

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# **848/877 Titrino plus**

## **Tutorial**

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# 1 Introduction


The present tutorial helps you to get acquainted with the operation of the 848/877 Titrino plus. You will be guided step by step through the most important dialog pages by using a simple pH titration as an example. Thereby you will learn how to efficiently operate and use the 848/877 Titrino plus.

## 1.1 Structure of the tutorial

- Connecting the necessary devices and auxiliaries
- Configuration of electrode, solution, balance, printer and PC/LIMS report output
- Creating a titration method and titrating a single sample
- Printing the result automatically and manually
- Recalculating the result
- Defining method parameters
- Creating a sample table and titrating a sample series
- Storing the results as PC/LIMS reports on a USB stick and importing them into tiBase for further processing
- Importing PC/LIMS reports directly into tiBase with the software RS Server.

## 1.2 Symbols and conventions

The following symbols and styles are used in this documentation:

|   |   |
|---|---|
| <b>1</b>  | <b>Instruction step</b><br>Carry out these steps in the sequence shown. |
| <b>Method</b>   | <b>Dialog text, parameter</b> in the software                           |
| <b>File ► New</b>   | Menu or menu item   |
| <b>[Next]</b>   | <b>Button or key</b>  |
|  | <b>Note</b><br>This symbol marks additional information and tips.       |



## 2 Setup and configuration

### 2.1 Setting up the 848/877 Titrino plus

What you will need:

- A 848/877 Titrino plus
- A magnetic stirrer (801 Stirrer)
- Five sample vessels
- A pH electrode with connection cable
- An exchange unit (e.g. 20 mL) and tubings
- A bottle with titrant (e.g. sodium hydroxide solution  $c(\text{NaOH}) = 0.1 \text{ mol/L}$ )
- Possibly a printer with connection cable
- Possibly a balance with connection cable
- Possibly an 876 Dosimat plus or an 865 Dosimat plus

The manual for the 848/877 Titrino plus describes in detail how to install the accessories. A few notes about this:

#### **Titriments**

During this tutorial you will carry out simple titrations. Select a base as titrant.

#### **Sensor**

Use a pH glass electrode for the acid/base titration. Do not forget to plug the electrode cable into the connector **Ind.** on the rear of the instrument.

#### **Stirrer**

Connect the magnetic stirrer (**801 Stirrer**) on the rear of the instrument.

#### **Printer**

Select a printer with a USB connector. Connect a USB hub (distributor) using the **6.2151.100 adapter plug USB MINI (OTG) - USB A** to the USB connector of the 848/877 Titrino plus. Use a commercially available USB cable to connect the printer to the USB hub.

#### **Balance**

If you connect a balance to the 848/877 Titrino plus, you can transfer the sample size per push-button from the balance to the 848/877 Titrino plus. For this you need a **6.2148.030 RS-232/USB Box** which you can connect to the instrument with a USB cable and the **6.2151.100 adapter plug USB MINI (OTG) - USB A**. To be able to connect the RS-232/USB Box to the balance you need a serial connection cable (RS-232) from the balance manufacturer.

### 876/865 Dosimat plus

In case you would like to automatically add an auxiliary solution to the sample before the titration, you will need a Dosimat in addition. Connect the Dosimat with a **6.2141.240 connection cable** to the remote interface of the 848/877 Titrino plus.

## 2.2 Configuration



### NOTICE

External devices (printer, balance and USB stick) must be connected to the USB connector and, if necessary, be switched on before switching on the 848/877 Titrino plus.

### 2.2.1 Switching the instrument on and off

#### Switching on the instrument

Proceed as follows:



- 1 ■ Press the red **[STOP]** key.  
As soon as the buret unit has been recognized the following message appears:

```
New buret unit          005-109
! You must configure the new
! buret unit before you use
! it.
OK
```

- Confirm the message with **[OK]**.  
The request to carry out the **PREP** function appears:

```
Prepare buret unit      005-117
! Execute a PREP function.
! You find it under
! "Manual control/Dosing".
OK
```

All tubings and the cylinder are rinsed with the **PREP** (Preparing) function. The preparing of the buret unit is described in detail later on (*see chapter 3.3.1, page 21*). The buret unit must however first be configured (*see chapter 2.2.4, page 6*).



- Confirm the message with **[OK]**.

The main dialog is displayed:

|             |       |
|-------------|-------|
| >Menu       | ready |
| Method      | DET   |
| ID1         |       |
| ID2         |       |
| Sample size | 1.0   |
| Unit        | g     |

### Switching off the instrument

Proceed as follows:

- 1 ▪ Keep the red **[STOP]** key pressed down.  
A progress bar is displayed. If the key is released during this time, then the instrument will not be switched off.
  - Press down the **[STOP]** key until the progress bar is finished.

## 2.2.2 Setting the dialog language

If the dialog does not appear in the appropriate language, the dialog language can easily be changed. Proceed as follows:

- 1 **Open the system settings**
  - In the main dialog, select **Menu** and press **[OK]**.
  - In the main menu, select **System** and press **[OK]**.
  - In the system menu, select **Settings** and press **[OK]**.
- 2 **Change the language**
  - Select **Language** and press **[OK]**.
  - Select the required language and press **[OK]**.
  - Press **[BACK]**.

If no second dialog language is available, a corresponding language file must first be loaded into the instrument. The chapter **Instrument diagnosis** in the manual of the 848/877 Titrino plus describes how to proceed.

### 2.2.3 Configuring the electrode

The electrode is configured under **Menu ▶ System ▶ Sensors**.

Proceed as follows:

#### 1 Open the dialog Sensor list

- In the main dialog, select **Menu** with the arrow keys [↑] or [↓] and confirm with [OK].

The main menu opens.

```
Menu ready
>Manual control
>Results
>Parameters
>System
>Control
>Print reports
```

- With the arrow key [↓], select the menu item **System** and confirm with [OK].

The system dialog opens:

```
System ready
>Settings
>Sensors
>Solutions
>Common variables
>File management
>External devices
>Diagnosis
```

- Select the menu item **Sensors** and confirm with [OK].

The sensor list is displayed:

```
Sensor list ready
pH electrode
Metal electrode
Temperature sensor

Edit New Delete
```

#### 2 Add a new electrode

- Select **pH electrode**.
- In the function bar, select **[New]** and confirm with [OK].



- With the arrow key [ $\downarrow$ ], select the menu item **System** and confirm with **[OK]**.

The system dialog opens:

```
System ready
>Settings
>Sensors
>Solutions
>Common variables
>File management
>External devices
>Diagnosis
```

- Select the menu item **Solutions** and confirm with **[OK]**.

The list of the configured solutions is displayed:

```
Solution list ready
#IEU

Edit New Delete
```

The new solution has been entered into the list, but it does not have a name yet. The asterisk (\*) on the right-hand side indicates that this buret unit has been attached.

The designation **IEU** is the name for an exchange unit with integrated data chip (Intelligent Exchange Unit).

## 2 Define a name

- With the arrow keys [ $\leftarrow$ ] or [ $\rightarrow$ ], select the function **Edit** in the function bar and confirm with **[OK]**.

The properties dialog opens:

```
Edit solution ready
Name
Type IEU
Cylinder volume 20 mL
Concentration 1.000
Concentration unit mol/L
Titer 1.000
Titer unit ↓
```



## 2.2.5 Configuring external devices

In the system settings you can define whether the results are to be put out as PC/LIMS reports. You have the possibility to save them on a USB stick and to read them into tiBase afterwards. The reports can also directly be sent to the PC and imported into tiBase. For this, you have to install the software **RS Server** on your PC.

For the titrations you can use further external devices. These include:

- Printer
- Balance
- Keyboard

The configuration of the PC/LIMS report output and the external devices are defined under **Menu ▶ System ▶ External devices**.

Proceed as follows:

### 1 Open the dialog External devices

- In the main dialog, select **Menu** with the arrow keys [↑] or [↓] and confirm with [OK].

The main menu opens.

```
Menu                                ready
>Manual control
>Results
>Parameters
>System
>Control
>Print reports
```

- Select the menu item **System** and open the system dialog with [OK].

```
System                                ready
>Settings
>Sensors
>Solutions
>Common variables
>File management
>External devices
>Diagnosis
```

- Select the menu item **External devices** and confirm with [OK].

The list of configurable external devices is displayed:

```
External devices                      ready
PC/LIMS report                        USB Stick
Printer                               Custom (ESC-POS)
Graphics width                        200 px
Keyboard layout                       English US
Balance                               Sartorius
>COM1 settings
>COM2 settings
```



```

External devices          ready
PC/LIMS report           USB Stick
Printer                   HP DeskJet
Graphics width           1196 px
Keyboard layout           English US
Balance                   Sartorius
>COM1 settings
>COM2 settings

```

### Selecting a balance

The sample size can directly be read in from a balance. For this, you have to select the balance type and configure it.

Proceed as follows:

1. With the arrow key [↓], select the menu item **Balance** and confirm with [OK].

The list with the balances supported by the 848/877 Titrino plus opens.

```

Balance
AND
Mettler
Mettler AT
Mettler AX
Ohaus
Precisa
Sartorius

```

- Select the a balance type and apply with [BACK]. The balance is entered in the dialog **External devices**.

```

External devices          ready
PC/LIMS report           COM2
Printer                   Custom (ESC-POS)
Graphics width           200 px
Keyboard layout           English US
Balance                   Sartorius
>COM1 settings
>COM2 settings

```

Under **COM1 settings** you have to set the interface parameters of the connected balance (see manual 848/877 Titrino plus). Use the identical settings as defined for the balance.

### Switching to the main dialog

1. Repeated pressing on [BACK] will switch you to the main dialog.



- Select **New** and press **[OK]**.  
The dialog **New method** is displayed.

|                   |       |
|-------------------|-------|
| New method        | ready |
| Mode              | DET   |
| Measured quantity | pH    |

## 2 Select the titration mode

- Select **Mode** and press **[OK]**.
- Apply the default value **DET** with **[BACK]** or press **[OK]** and select **MET**.

The 877 Titrino plus does not have the DET mode. Select **MET**.

## 3 Select the measured quantity

- Select **Measured quantity**.
- Apply the default value **pH** with **[BACK]**.

## 4 Return to the main dialog

- Press **[BACK]**.

The method template **DET\_pH** is now loaded and is displayed in the main dialog under **Method**.

## Selecting a solution

### 1 Open the dialog

- In the main dialog, select **Menu** and confirm with **[OK]**.
- Select the menu item **Parameters** and confirm with **[OK]**.

|                       |        |       |
|-----------------------|--------|-------|
| Parameters            | DET pH | ready |
| >Start conditions     |        |       |
| >Titration parameters |        |       |
| >Stop conditions      |        |       |
| >Evaluation           |        |       |
| >Calculation          |        |       |
| >Statistics           |        |       |
| >Reports              |        |       |



- Enter a value corresponding to the cylinder volume of the dosing unit used and apply with **Accept** or **[BACK]**.

### 3 Define a stop EP

- Select **Stop EP** and press **[OK]**.
- Enter **1** and apply with **Accept** or **[BACK]**.

### 4 Define a volume after EP

- Select **Volume after EP** and press **[OK]**.
- Enter **1**.
- Apply with **Accept** or **[BACK]**.

As soon as an equivalence point has been detected, titrating is continued with 1 mL.

If no equivalence point has been detected, the titration is finished after the defined stop volume.

- With **[BACK]**, switch to the dialog **Parameters**.

## Defining a calculation

### 1 Define a name

- Select the menu item **Calculation** and open the corresponding dialog with **[OK]**.

| Calculation        | ready |
|--------------------|-------|
| R1:                |       |
| R2:                |       |
| R3:                |       |
| R4:                |       |
| R5:                |       |
| <b>Edit</b> Delete |       |

For each titration up to five results (R1...R5) can be calculated.

- Select the line **R1:** for the first result and press **[OK]**.

| Edit result    | ready |
|----------------|-------|
| Result name    |       |
| R1=            |       |
| Decimal places | 2     |
| Result unit    | %     |
| Save as titer  | off   |
| Save as CV     | off   |

In this dialog the properties for the result are defined.



- Select **Content %** and press **[OK]**.

```

R1=
EP1#CONC#TITER#Molw#0.1/C00
0123456789
.+-*/()
C00 EP# CI# R# FP# CU0# SMN#
TITER CONC Var Templates
Accept Cancel Clear [+ -]
←-| |→

```

The formula for the calculation of the percentage content of a sample is not complete. It contains the following variables:

- **EP1** = the consumption at the first endpoint in mL
  - **CONC** = the concentration of the selected solution
  - **TITER** = the titer of the selected solution
  - **C00** = the sample size of the sample
  - The wildcard **Molw**, for which the molecular mass of the sample is entered.
- Select **←-|** and press **[OK]** several times until the cursor is placed after **Molw** in the input field.
  - Select **[+ -]** and press **[OK]** several times until **Molw** has entirely been deleted.
  - Enter the molar mass of the titrant as numerical value.
  - Apply the formula with **Accept** or **[BACK]**.
  - Click twice on **[BACK]** to switch to the dialog **Parameters**.

## Defining the report output

### 1 Open the dialog Report

```

Parameters DET pH ready
>Start conditions
>Titration parameters
>Stop conditions
>Evaluation
>Calculation
>Statistics
>Reports ↓

```



## 3.2 Entering sample data

There are two possibilities to enter sample data, such as e.g. the sample size, in the instrument. For sample series with a lot of different samples, the sample table can be used. For single determinations or sample series with the same sample data, it can be entered on the main page of the instrument dialog.

For the first determination, for testing the created method, enter the data on the main page.

Proceed as follows:

### 1 Enter the sample identifications

- Switch to the main dialog with **[BACK]** if necessary.

```
>Menu                      ready
Method                      DET
ID1
ID2
Sample size                  1.0
Unit                         g
```

- Select the line **ID1** and press **[OK]**.

```
ID1
'
[ABCDEF...
abcdefghijklmnopqrstuvwxyz
0123456789,-µ*! #&?'()*+./
ÄÅÄÉfÑöóÜúääááçéëíîñöóóÜ
Accept Cancel Clear [+]
```

- Enter a designation for the sample (e.g. acetic acid) and apply with **Accept** or **[BACK]**.
- Select the line **ID2** and press **[OK]**.
- Enter a further designation for the sample (e.g. charge number or sampling date) and apply with **Accept** or **[BACK]**.



## 2 Enter the sample size

- Select the line **Sample size** and press **[OK]**.

```

Sample size
1.0
1234567890-.
Accept Cancel Clear [+ -]
-----
Range: 10 characters
Default: 1.0
  
```

- Enter the sample size and apply with **Accept** or **[BACK]**.
- Select the line **Unit** and press **[OK]**.

```

Unit
g
mg
µg
mL
µL
pieces
>User-defined
  
```

- Select the unit for the sample size and press **[BACK]** or **[OK]**.

### Applying the sample size from the balance

If you have connected a balance, you do not need to open the input dialog of the sample size and the unit. On the balance, press the key (with the printer symbol) for printing the weight. The sample size and the corresponding unit are transferred to the 848/877 Titrino plus and are displayed in the main dialog in the corresponding lines.



#### NOTICE

If the sample size is entered in the main dialog or into the sample table depends on whether the sample table is enabled or disabled.

Proceed as follows to disable the sample table:

## 1 Disable the sample table

- Select **Menu** and press **[OK]**.
- Select **Control** and press **[OK]**.
- Select **Sample table** and press **[OK]**.
- Select **off** and press **[BACK]** or **[OK]**.
- Press **[BACK]** twice.

## 3.3 Carrying out a determination

If you have prepared a sample and entered the sample data, you can carry out a first titration.

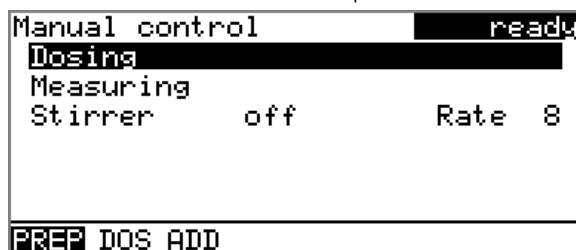
### 3.3.1 Preparing the titration

First, the exchange unit with the titrant has to be prepared. The tubings must be rinsed and bubble-free.

Proceed as follows:

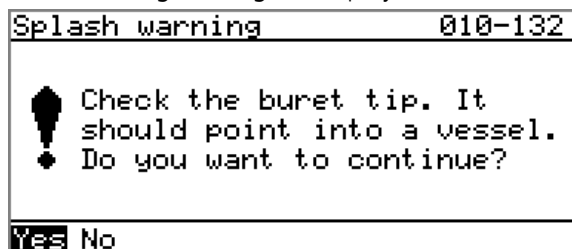
#### 1 Prepare the exchange unit

- Place an empty sample beaker on the stirrer.
- In the main dialog, select **Menu** and press **[OK]**.
- Select **Manual control** and press **[OK]**.



In this dialog you can carry out all functions of the instrument.

- Select the line **Dosing** and press **[OK]**.  
The following message is displayed:



- Confirm the message with **[OK]**.  
The function **PREP** is being carried out.  
Now the tubings of the exchange unit are automatically rinsed.
- Afterwards with **[BACK]** to exit the **Manual control**.

#### 2 Rinse the electrode

- Rinse the electrode and the buret tip with water from a spray bottle.



### 3 Position the sample

- Place the sample beaker on the stirrer and immerse the electrode by lowering the electrode holder into the sample.
- Place a stirring bar into the sample.

## 3.3.2 Carrying out the determination

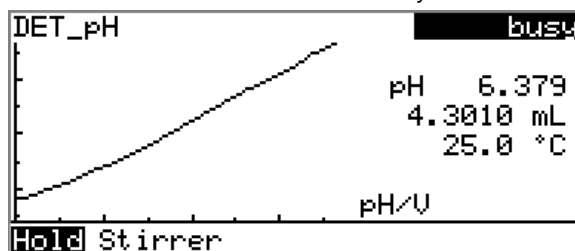
### 1 Start the method

- Press **[START]**.

The determination starts. The individual steps of the methods are displayed.

One can use the key **[BACK]** to switch back and forth between the live display and the main dialog. This allows to modify single parameters via the main page and main menu during a running determination. However, only those parameters which do not decisively influence the running determination can be modified.

At the start of the titration, the titration curve and the current values (measured value, volume, temperature) are displayed. As the titration continues, the curve is automatically scaled anew in order that the entire titration run is always visible.



After the titration a report is printed out, if this has been defined in the method.

## 3.4 Displaying results

After the determination, the result page is displayed.

The results of the last determination are always available under **Menu ▶ Results**.

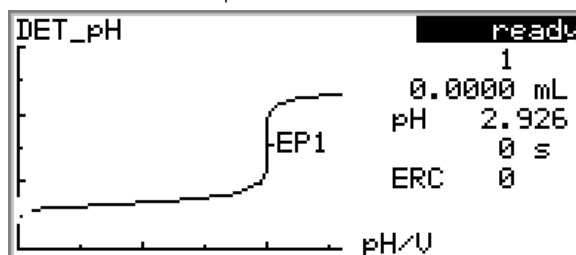
| Results         |          | ready     |
|-----------------|----------|-----------|
| Content         |          | 5.09 %    |
| EP1             | pH 7.564 | 9.9999 mL |
|                 | 73.6 s   | ERC 85.6  |
| Stop EP reached |          |           |
| Curve Recalc    |          |           |

Name and result are displayed. Furthermore, the values of the endpoints found are displayed. These are always: measured value, volume, time and ERC (Equivalence point Recognition Criterion). The stop criterion which caused the end of the determination is also indicated.

Proceed as follows to display the titration curve:

### 1 Display the titration curve

- Select **Curve** and press **[OK]**.



With the keys **[⇒]** and **[⇐]**, you can show the corresponding data (volume, measured value, time and ERC) of every single measuring point on the titration curve.

- With **[BACK]**, return to the result page.

## 3.5 Recalculating the determination

After the end of the titration, the result is shown on the display. The determination may be recalculated if needed.

In recalculating, the sample size, the calculation formula or the evaluation parameters can be modified. In the recalculating, the sample size, the calculation formula or the evaluation parameters, for example, can be modified.

As an example, the result in **%** can newly be calculated in **mol/L**.

Proceed as follows:

### 1 Open the dialog

- With **[BACK]**, return to the main dialog.
- Use **Menu ▶ Parameters ▶ Calculation** to open the dialog **Calculation**.





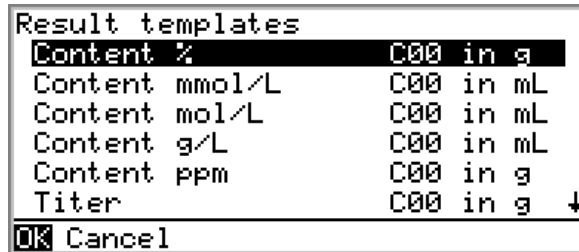
- Select **R2:** and press **[OK]**.

## 2 Enter a result name

- Select **Result name** and press **[OK]**.
- In the text editor, enter the name for the result in mol/L and press **[BACK]**.

## 3 Select a result template

- Select **R2=** and press **[OK]**.
- Select **Templates** and press **[OK]**.



- Select **Content mol/L** and press **[OK]**.
- Press **[BACK]**.

## 4 Select the unit

- Select **Result unit** and press **[OK]**.



- Select the result unit **mol/L** and press **[OK]**.
- With **[BACK]**, return to the dialog **Menu**.

## 5 Calculate the new result

- Select **Results** and press **[OK]**.

- In the function bar, select **Recalculate** and press **[OK]**.  
After the recalculation, the dialog **Results** is displayed with the content in mol/L.

| Results         |          | ready      |
|-----------------|----------|------------|
| Content         |          | 5.09 %     |
| Content         |          | 1.27 mol/L |
| EP1             | pH 7.792 | 10.0062 mL |
|                 | 72.6 s   | ERC 85.5   |
| Stop EP reached |          |            |
| Curve Recalc    |          |            |

## 3.6 Printing a report manually

You can print out the report manually via **Menu ▶ Print reports**.

Proceed as follows:

### 1 Open the main menu

- In the main dialog, select **Menu** and press **[OK]**.

| Menu |                      | ready |
|------|----------------------|-------|
| >    | Manual control       |       |
| >    | Results              |       |
| >    | Parameters           |       |
| >    | System               |       |
| >    | Control              |       |
| >    | <b>Print reports</b> |       |

### 2 Open the print dialog

- Select the menu item **Print reports** and press **[OK]**.

The dialog window with the available reports opens:

| Print reports |                         | ready |
|---------------|-------------------------|-------|
|               | <b>Results</b>          |       |
|               | Curve                   |       |
|               | Measuring point list    |       |
|               | Parameters              |       |
|               | System                  |       |
|               | Calculations/Statistics |       |
|               | Report as in method     |       |

### 3 Select a report

- Select the desired report and press **[OK]**.

The report is being printed out.



The following reports can be printed out manually:

|                                |   |
|--------------------------------|---|
| <b>Results</b>                 | Result report with determination properties, sample data, calculated results, etc.  |
| <b>Curve</b>                   | Curve report. The width of the curve is defined in the system settings.   |
| <b>Measuring point list</b>    | Measuring point list report.  |
| <b>Parameters</b>              | Report with all method parameters of the loaded method.   |
| <b>System</b>                  | System report with system settings, solution list, external devices, etc.   |
| <b>Calculations/Statistics</b> | Calculation report. The statistics is also printed out in case of multiple determinations. The individual determinations with the respective sample size will be printed out for each result, along with the mean value and the absolute and the relative standard deviation. |
| <b>Report as in method</b>     | The reports that are defined in the method will be printed out.   |
| <b>PC/LIMS</b>                 | Machine-readable report with all of the data for a determination. This report can be saved as a TXT file on a connected USB stick or sent to a terminal program or to a LIMS via an RS-232 interface. The definition is made in the system settings.                          |

## 4 Extended titration

In this section you will learn how to:

- work with statistics
- create a sample table
- read in the sample size from a balance
- carry out a determination series
- save results on a USB stick
- view results

### 4.1 Enabling the statistics

In the statistics overview of a sample series, the mean value (mean), the absolute and the relative standard deviation (s abs and s rel) are displayed. For the mean value, the number of individual results from which it has been calculated is displayed in parentheses.

The statistics is enabled under **Menu ▶ Parameters ▶ Statistics**.

Proceed as follows:

#### 1 Open the dialog Statistics

- In the main menu, open the parameters dialog.
- Select the menu item **Statistics** and open the corresponding dialog with **[OK]**.

#### 2 Enable the statistics

- Select **Statistics** and press **[OK]**.
- Select **on** and confirm with **[OK]**.  
The parameter **Number of determinations** is additionally displayed.

#### 3 Enter the number of determinations

- Select the parameter **Number of determinations** and open the editing dialog with **[OK]**.
- Enter the value **5** as number of determinations to be carried out.
- Apply the value with **Accept** or **[BACK]**.



## 4.3 Defining the titration parameters

You can optimize a titration run by modifying single titration parameters according to the needs of the titration. For the following titration, the stirring rate, the dosing rate and the maximum waiting time are being modified.

The titration parameters are defined under **Menu ▶ Parameters ▶ Titration parameters**.

Proceed as follows for this:

### Modifying the stirring rate

#### 1 Open the dialog

Use **Menu ▶ Parameters ▶ Titration parameters** to open the dialog **Titration parameters**.

|                      |              |
|----------------------|--------------|
| Titration parameters | ready        |
| Titration rate       | optimal      |
| Temperature          | 25.0 °C      |
| Sensor               | pH electrode |
| Solution             | 0.1 M NaOH   |
| Stirrer              | off          |

#### 2 Set the stirring rate

- Select **Stirring rate** and press **[OK]**.
- In the editor, enter the value **5**.
- Apply the value with **[BACK]**.

### Modifying the titration parameters

#### 1 Select user defined settings

- Select **Titration rate** and press **[OK]**.
- Select **user**.



- Apply with **[BACK]**.

|                       |             |
|-----------------------|-------------|
| Titration parameters  | ready       |
| <b>Titration rate</b> | <b>user</b> |
| Volume increment      | 0.10000 mL  |
| Dosing rate           | max. mL/min |
| Signal drift          | 50.0 mV/min |
| Min. waiting time     | 0 s         |
| Max. waiting time     | 25 s        |
| Temperature           | 25.0 °C↓    |

or

|                       |             |
|-----------------------|-------------|
| Titration parameters  | ready       |
| <b>Titration rate</b> | <b>user</b> |
| Meas. point density   | 4           |
| Min. increment        | 10.00 µL    |
| Max. increment        | off         |
| Dosing rate           | max. mL/min |
| Signal drift          | 50.0 mV/min |
| Min. waiting time     | 0 s↓        |

### 2 Enter the dosing rate

- Select **Dosing rate** and press **[OK]**.
- In the editor, enter the value **20**.
- Apply the value with **[BACK]**.

### 3 Modify the maximum waiting time

- Select **Max. waiting time** and press **[OK]**.
- In the editor, enter the value **30**.
- Apply with **[BACK]**.

## 4.4 Saving the method

### 1 Open the method table

- In the main dialog, select **Method** with the arrow key [↓] and press **[OK]**.
- In the function bar, select the function **Store** with the arrow key [⇒] and press **[OK]**.

### 2 Enter a method name

- Open the text editor with **[OK]**.
- Enter a name and press **[BACK]** twice.  
The new name is displayed in the method table.
- With **[BACK]**, return to the main dialog.

## 4.5 Creating a sample table

If you create a sample table you have the possibility to assign different methods to the samples of a sample series.

The sample table is enabled under **Menu ▶ Control**. Afterwards, you see it in the main menu.

Proceed as follows:

### 1 Open the sample table

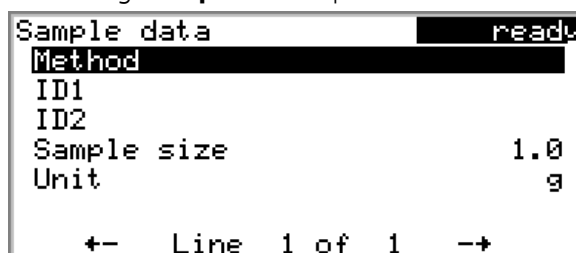
- In the main dialog, select **Menu** and press **[OK]**.
- Select **Control** and press **[OK]**.
- Select **Sample table** and press **[OK]**.
- Afterwards, select **on** and confirm with **[OK]**. Return to main menu with **[BACK]**.
- Select **Sample table** and press **[OK]**.



### 2 Create the sample data

- In the function bar, select **Edit** with the arrow key **[←]** or **[→]** and confirm with **[OK]**.

The dialog **Sample data** opens.



### 3 Select a method

- Select **Method** and press **[OK]**.
- In the dialog **Method**, select a method name and press **[OK]**.

### 4 Enter the sample identifications

- Select **ID1** and press **[OK]**.



- In the text editor, enter the sample identification **#8805923** (e.g. as the analysis number) for the first sample and press **[BACK]**.
- Select **ID2** (optional) and press **[OK]**.
- In the text editor, enter the additional indication for the sample **#8805923** (e.g. batch number, date, etc.) and press **[BACK]**.

## 5 Enter the sample size

The sample size can be entered two different ways.

*Entering the sample size manually:*

- Select **Sample size** and press **[OK]**.
- Enter the sample size and apply with **[BACK]**.

*Applying the sample size from the balance:*

- On the balance, press the key **[Print]**.  
The sample size of the sample is transferred from the balance into the dialog **Sample data**.

```

Sample data                                ready
Method                                    DET_pH
ID1                                       #8805923
ID2
Sample size                               0.5847
Unit                                       g

+- Line 1 of 1 -+

```

## 6 Enter the data for more samples

- Press the arrow key **[⇒]**.  
In the sample table an additional line is inserted.  
Note the specifications in the lowest line. You can use the arrow keys **[⇐]** and **[⇒]** to switch from line to line.

```

Sample data                                ready
Method                                    DET_pH
ID1                                       #8805923
ID2
Sample size                               0.5847
Unit                                       g

+- Line 2 of 2 -+

```

- Enter additional sample data in the same way. Use **[BACK]** to return to the sample table.

The sample table looks like this:

| Sample table                  |          |          | ready |
|-------------------------------|----------|----------|-------|
| 1                             | #8805923 | 0.5847 g |       |
| 2                             | #8805924 | 0.5639 g |       |
| 3                             | #8805925 | 0.5739 g |       |
| 4                             | #8805926 | 0.5713 g |       |
| 5                             | #8805927 | 0.5829 g |       |
| 6                             | ...      |          |       |
| <b>Edit</b> Delete Insert New |          |          |       |

After creating the sample table return to the main dialog with **[BACK]**.



## PC/LIMS reports

### 1 Import PC/LIMS reports with a USB stick into tiBase

- Connect the USB stick to the PC.
- Start tiBase.
- Click on the symbol of the program part **Database**.
- Via the menu **Determinations** ► **Import...**, the PC/LIMS reports are imported into the database.

or, when the 848/877 Titrimo plus is directly connected to a PC

### 2 Export PC/LIMS reports directly in tiBase

- Press **[F5]** in tiBase.

The determinations are displayed in the **Determination overview** table.