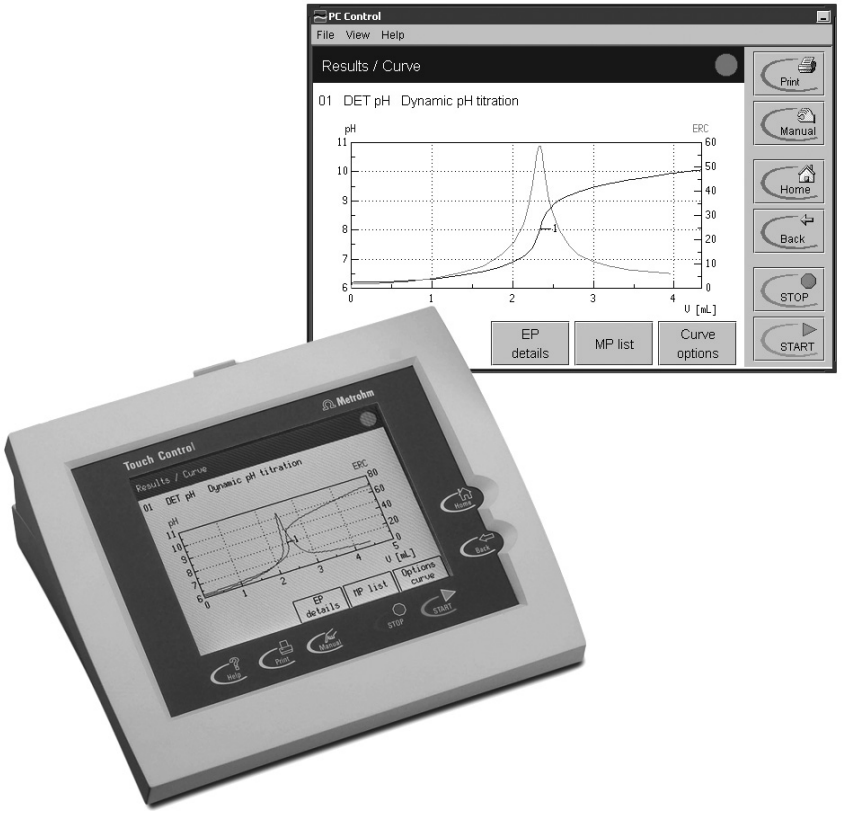
PC Control / Touch Control



Version 6.0 / 5.840.0150 – New Features

Manual

8.840.8007EN

Metrohm

Metrohm AG
CH-9101 Herisau
Switzerland
Phone +41 71 353 85 85
Fax +41 71 353 89 01
info@metrohm.com
www.metrohm.com

PC Control / Touch Control

Version 6.0 / 5.840.0150 – New Features

Manual

8.840.8007EN

07.2009 jb

Teachware
Metrohm AG
CH-9101 Herisau
teachware@metrohm.com

Although all the information given in this documentation has been checked with great care, errors cannot be entirely excluded. Should you notice any mistakes please send us your comments using the address given above.

Table of contents

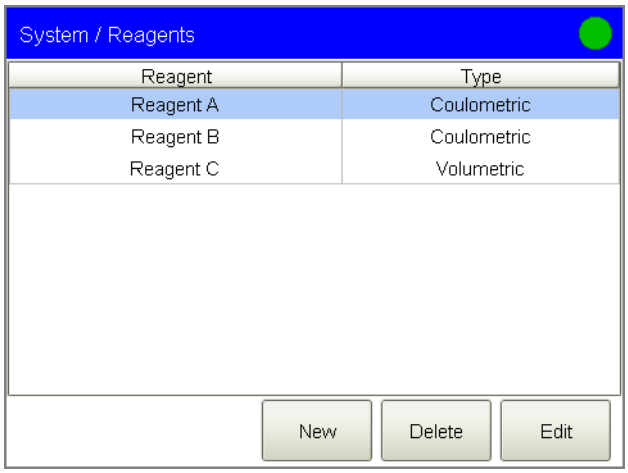
1 General

1.1 Reagents

Main dialog: **System ▸ Reagents**

This chapter describes how you can create a list of the reagents used in the system. Depending on the usage a distinction is made between two types of reagents:

- Reagent for volumetric determinations
- Reagents for coulometric determinations



The list of reagents gives the designation and type of each reagent configured.

[New]

Add a new reagent to the list, see following chapter.

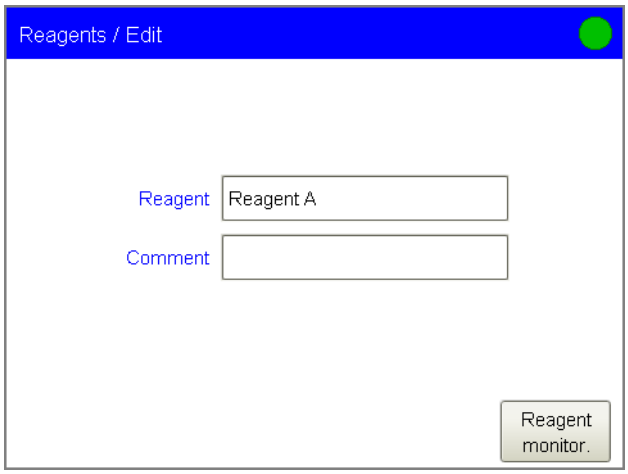
[Delete]

Delete the selected reagent from the list.

[Edit]

Edit the data of the selected reagent, see following chapter.

1.1.1 Editing reagent data



Reagent

The designation of the reagent is used for unambiguous identification.

Input	**24 characters maximum**

Comment

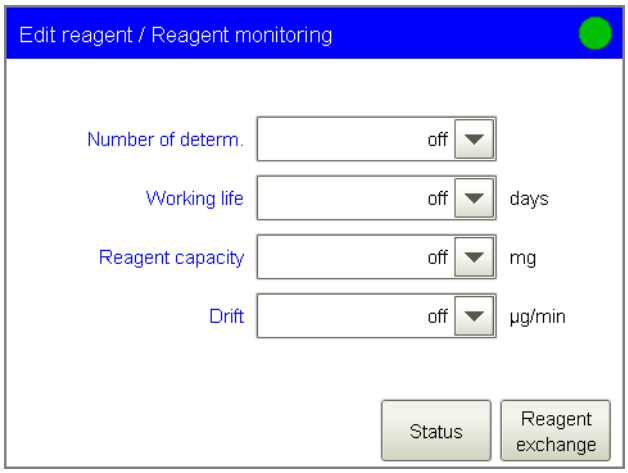
Input	**24 characters maximum**

[Reagent monitor.]

Set the parameters for the reagent monitoring, see following chapter.

1.1.2 Reagent monitoring

In the dialog **Edit reagent / Reagent monitoring** the conditions for the monitoring of the reagent are defined.



If one of the following values is reached, then the reagent has to be exchanged. The values are checked in the following cases:

- at the start of the determination.
- at the end of the determination.

Number of determ.

The number of determinations to be carried out with a certain amount of reagent depends on the type of sample and its amount.

Range	**1 ... 999**
Selection	**off**
Default value	**off**

Working life

Working life of the reagent.

Range	**1 ... 999 days**
Selection	**off**
Default value	**off**

Volume

This parameter is only visible with volumetric reagents.

Volume of the titrant dosed.

Range	**1.0 ... 999.9 mL**
Selection	**off**
Default value	**off**

Reagent capacity

This parameter is only visible with coulometric reagents.

Water capacity of the reagent.

Range	**1 ... 9999 mg**
Selection	**off**
Default value	**off**

Drift

This parameter is only visible with coulometric reagents.

During conditioning the measured drift has to be in the following range for 2 min: '**specified drift value + 50 µg/min**'.

Range	**1 ... 999 µg/min**
Selection	**off**
Default value	**off**

[Status]

Display the status overview of the current values of the reagent monitoring.

[Reagent exchange]

Edit the parameters for the reagent exchange.

Dialog "Reagent monitoring / Status"

In this dialog the current values of the reagent monitoring are displayed.

[Reset]

Reset the values to zero.

Dialog "Reagent monitoring / Reagent exchange"

In this dialog the parameters for the reagent exchange are defined.

Reagent exchange

The reagent can either be exchanged manually or automatically.

Selection	**manual** | **auto**
Default value	**manual**

manual
If a monitored parameter has reached the limit set, a message is being displayed. Then the reagent has to be exchanged manually.

auto
If a monitored parameter has reached the limit set, the method defined below is started automatically.

Memory

This parameter can only be edited when **Reagent exchange** = **auto**.

Memory location the method is loaded from. All memory locations are selectable, even if they are currently not accessible.

Selection	**Internal memory** | **Card 1** | **Card 2** | **Shared memory**
Default value	**Internal memory**

Shared memory
Memory released on an external system. For this an 847 USB Lab Link is necessary.

Method

This parameter can only be edited when **Reagent exchange** = **auto**.

Method used for emptying the titration cell.

Note

Make sure that the memory is accessible.

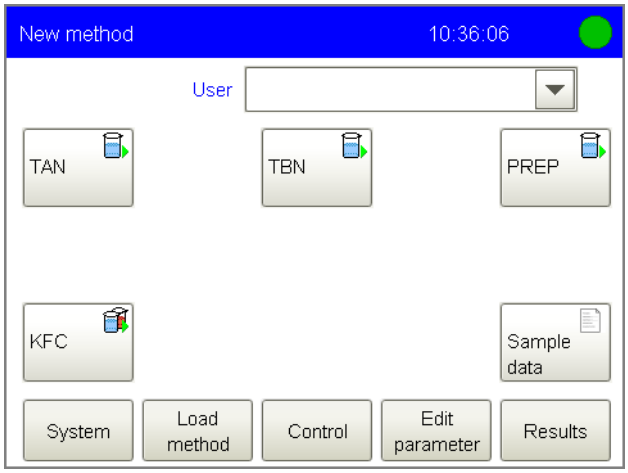
Input	**32 characters maximum**
Selection	**Selection of stored methods**

1.2 Favorites

Main dialog: **Control** ▸ **Favorites**

Main dialog: **System** ▸ **System settings** ▸ **User admin.** ▸ **Edit** ▸ **Favorites**

This chapter describes how you can create so-called favorites. These favorites are comparable to the favorites/bookmarks of your Internet browser. On the main dialog, a button is created for each favorite. With pressing a single key or with a single mouse click you can trigger an action without having to click yourself through different dialogs.



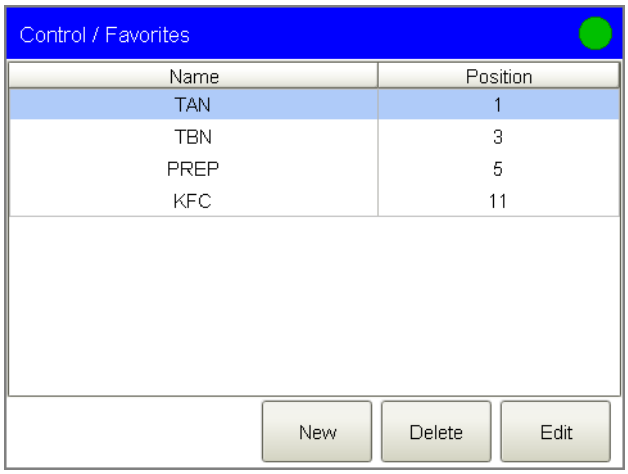
The following objects can be saved as a favorite:

- Methods
- Sample data silos

Depending on whether you are working with or without login function, user-specific or common favorites can be created.

- Operation with login function:
  If you are working with the login function activated, **user-specific favorites** can be created. These can only be used by a certain user.
  User-specific favorites are created as follows:
  - in the user administration of a user with administrator rights (**System** ▸ **System settings** ▸ **User admin.** ▸ **Edit**).
  - in the dialog **Control** for the user logged in.
- Operation without login function:
  If you are working without login function, **common favorites** can be created. These favorites are available for all users. Common favorites are created in the dialog **Control**.

1.2.1 Creating favorites



The list of favorites gives the designation and position of the button on the main dialog of each favorite configured.

[New]

Add a new favorite to the list, see following chapter.

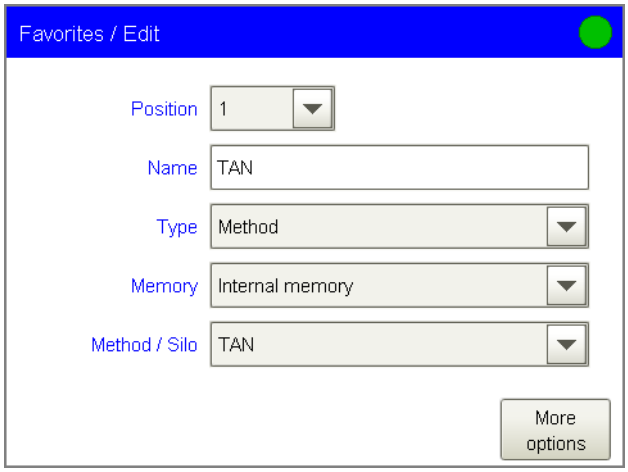
[Delete]

Delete the selected favorite from the list.

[Edit]

Edit the data of the selected favorite, see following chapter.

1.2.1.1 Editing favorites



Position

On the main dialog, a button is created for each favorite. These buttons are ordered in three columns at fixed positions. The position 1 can be found top left.

Range	**1 ... 14**
Default value	**1**

Name

The designation of the favorite is used for unambiguous identification.

Input	**24 characters maximum**

Type

Definition, whether the favorite is representing a single method or a complete sample data silo.

Selection	**Method** | **Sample data silo**
Default value	**Method**

Memory

Memory location the method or the sample data silo is loaded from. Only the currently accessible memory locations are selectable.

Selection	**Internal memory** | **Card 1** | **Card 2** | **Shared memory**
Default value	**Internal memory**

Shared memory
Memory released on an external system. For this an 847 USB Lab Link is necessary.

Method / Silo

Method or sample data silo of the favorite.

Selection	**Selection of stored methods or sample data silos**

[More options]

Parameterize the autostart function, see following chapter.

More options

With **[More options]** the autostart function is parameterized.

Autostart

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

If this parameter is activated, a new determination is started automatically at the end of a determination. This continues until the quantity specified has been reached (see **Number of autostarts**).

Number of autostarts

This parameter can only be edited when **Autostart** = **on**.

Number of automatic starts.

Range	**1 ... 9999**
Default value	**1**
Selection	**Silo**

Silo
The number of automatic starts corresponds to the number of samples in the sample data silo.

2 Parameters

2.1 Coulometric Karl Fischer titrations (KFC)

2.1.1 Control parameters

Under **[Control parameters]**, the control parameters for the endpoint are defined.

Endpoint at

Measured value for the endpoint.

Range	**–1250.0 ... 1250.0 mV**
Default value	**50.0 mV**
Selection	**off**

Titration rate

Three predefined sets of parameters can be selected for the titration rate.

Selection	**slow** | **optimal** | **fast** | **user**
Default value	**optimal**

slow
For samples with a low water content or samples which release their moisture only slowly.

optimal
For all standard titrations. The parameters have been optimized for the most frequent applications.

fast
For uncritical samples with high water content.

user
The individual titration parameters can be modified.

The settings of the individual titration rates are listed in *table 1, page 10*.

User-defined parameters

These parameters are only accessible when **Titration rate** = **User**.

Dynamics

This parameter defines the control range before the specified endpoint. Within the control range, the iodine is generated step by step, the generation is finely controlled. The closer the endpoint, the slower the iodine is generated until the rate defined under **Min. rate** is reached. The larger the control range, the slower the titration. Outside the control range,

iodine is being continuously generated, the rate is defined under **Max. rate**.

Range	**0.1 ... 1250.0 mV**
Default value	**70.0 mV**
Selection	**off**

Max. rate

Rate at which iodine is generated outside the control range.

Range	**1.5 ... 2241.0 µg/min**
Selection	**maximum**
Default value	**maximum**

Min. rate

Rate at which iodine is generated at the very beginning of the titration and in the control range at the end of the titration. This parameter has a decisive influence on the titration rate and thus also on the accuracy. The smaller the selected minimum rate, the slower the titration.

Range	**0.3 ... 999.9 µg/min**
Default value	**15.0 µg/min**

Table 1 Default values of the predefined titration rates for KFC

	Titration rate		
	slow	**optimal**	**fast**
Dynamics	120.0 mV	70.0 mV	30.0 mV
Max. rate	1000.0 µg/min	maximum	maximum
Min. rate	0.3 µg/min	15.0 µg/min	30.0 µg/min

Stop criterion

Stop criterion

The titration is stopped when the endpoint has been reached and this stop criterion has been fulfilled. If no stop criterion has been selected then the titration will not be stopped. The stop conditions *(see Chapter 2.1.3, page 12)* always lead to a stop, even if the stop criterion has not been reached.

Selection	**drift** | **time** | **rel. drift** | **off**
Default value	**rel. drift**

drift
The titration is stopped when the stop drift has been reached.

time
The titration is stopped when the endpoint has been exceeded during a certain period of time (**Delay time**).

rel. drift
The titration is stopped when the sum of the drift at the start of the titration and the relative stop drift has been reached.

off
The titration will not be stopped until the stop conditions have been fulfilled.

Stop drift

This parameter can only be edited when **Stop criterion** = **drift**.

The titration is stopped when the endpoint and the stop drift have been reached.

Range	**1 ... 999 µg/min**
Default value	**5 µg/min**

Delay time

This parameter can only be edited when **Stop criterion** = **time**.

When the endpoint has been reached, the specified time is allowed to elapse after the last dosing and the titration is then stopped.

Range	**0 ... 999 s**
Default value	**10 s**

Relative stop drift

This parameter is can only be edited when **Stop criterion** = **rel. drift**.

The titration is stopped when the endpoint and the sum of the drift at the start of the titration and the relative stop drift have been reached.

Range	**1 ... 999 µg/min**
Default value	**5 µg/min**

2.1.2 Titration parameters

Under **[Titration parameters]**, the parameters influencing the sequence of the entire titration are defined.

Pause

Waiting time, for example for dissolving the sample. During this time no iodine is generated.

Range	**0 ... 999999 s**
Default value	**0 s**

Extraction time

Minimum duration of the titration. The titration will not be stopped during the extraction time, even if the endpoint has already been reached. The titration is however stopped if a stop condition is fulfilled during this time

(see Chapter 2.1.3, page 12). Entering an extraction time may e.g. be advisable if a Karl Fischer oven is used.

Range	**0 ... 999999 s**
Default value	**0 s**

Temperature

Temperature entered manually. The temperature is being continuously measured when a temperature sensor is connected and when **Temp. measurement** = **automatic** or **continuous** is defined (see sensor dialog of the command).

Range	**–20.0 ... 150.0 °C**
Default value	**25.0 °C**

Time interval MP

Time interval for entering a measuring point in the measuring point list. The measuring point list is limited to 1000 measuring points.

Range	**0.1 ... 999999.0 s**
Default value	**2.0 s**

2.1.3 Stop conditions

Under **[Stop conditions]**, the conditions for stopping a titration are defined, if this does not occur automatically. This could be the case when the endpoint set is not reached or if the stop criterion *(see "Stop criterion", page 10)* is not fulfilled.

Stop time

The titration is stopped when the specified time has elapsed since the start of the titration.

Range	**1 ... 999999 s**
Selection	**off**
Default value	**off**

2.1.4 Conditioning

Under **[Conditioning]**, the conditions required for conditioning are defined.

Conditioning

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

If this parameter is activated, then the first time the titration is started the working medium will be titrated to the endpoint with the specified control parameters. The status is kept stable. The actual method run does not begin until **[START]** has been pressed once more.

Start drift

If the measured drift is smaller than this value for a certain time (so-called stabilizing time), **Conditioning OK** is displayed and the titration can be started. The stabilizing time is defined in the dialog **Conditioning / Conditioning options**.

Range	**1 ... 999 µg/min**
Default value	**20 µg/min**

Drift correction

The endpoint amount can be corrected taking the drift value into account. For this, the drift is multiplied with the drift correction time and this value is then subtracted from the endpoint amount. The drift correction time is the time interval between the end of conditioning and the end of the determination.

Selection	**auto** | **manual** | **off**
Default value	**auto**

auto
The value of the current drift is automatically applied at the start of the titration.

manual
If the drift is known throughout a longer period of time, this can be entered manually.

off
No drift correction takes place.

Drift value

This parameter can only be edited when **Drift correction** = **manual**.

Drift for manual drift correction.

Range	**0.0 ... 99.9 µg/min**
Default value	**0.0 µg/min**

Measured value display

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

If this parameter is activated, the currently measured value is displayed during the conditioning.

Automatic start [Autom. start]

Automatic start

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

If this parameter is activated, the determination is automatically started when the measured voltage suddenly changes. This setting will be ignored as long as the working medium has not been conditioned.

Threshold value

If the change in voltage is higher than this value, the determination will automatically be started.

Range	**0 ... 999 mV**
Default value	**50 mV**

Conditioning options [Cond. options]

Stabilizing time

Waiting time, during which the measured drift has to be smaller than the start drift defined until **Conditioning OK** is displayed. The start drift is defined in the dialog **Edit command / Conditioning**.

Range	**0 ... 999999 s**
Default value	**0 s**

Cond. stop time

Maximum permissible time over which conditioning may take place. Conditioning is stopped when the specified time has elapsed.

Range	**1 ... 999999 s**
Selection	**off**
Default value	**off**

Delay reconditioning

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

If this parameter is activated, the conditioning will not start before all the method commands have been processed. Otherwise, the conditioning will immediately start after the titration command.

Note

This parameter must be activated if commands follow which must not run simultaneously with the conditioning.

Example: Emptying the titration cell followed by adding new working medium.

2.1.5 Cell

Under **[Cell]**, the parameters for the titration cell are defined.

Generator electrode

Type of generator electrode.

Selection	**without diaphragm** | **with diaphragm**
Default value	**without diaphragm**

without diaphragm
Generator electrode without diaphragm.

with diaphragm
Generator electrode with diaphragm.

Generator current

Polarization current at the generator electrode.

Selection	**100 mA** | **200 mA** | **400 mA** | **auto**

400 mA
Default value, if **Generator electrode** = **without diaphragm**.

auto
The current is adapted to the conductivity of the reagent and automatically reduced near the endpoint. Default value, if **Generator electrode** = **with diaphragm**.

Reagent monitoring

Selection of the reagent from the list of reagents. The selection depends on the titration mode. Reagents are defined under **System ▸ Reagents**.

Selection	**Selection of configured reagents** | **off**
Default value	**off**

off
The reagent monitoring is not active.

2.1.6 Control device

Under **[Control device]**, the control device is selected the determination is carried out with. Control devices are defined under **System ▸ Device manager**.

Note

This button is only displayed when several control devices have been configured.

Control device

Selection of the control device from the list of devices. Only those devices are displayed which are able to carry out the command. The control devices do not have to be connected. This allows to transfer methods more easily from one system to another.

Selection	**Selection of configured control devices**

2.1.7 Sensor

Under **[Sensor]**, the parameters for the sensor are edited.

Sensor

Selection of the sensor from the sensor list. The selection depends on the measuring mode. Sensors are defined under **System ▶ Sensors**. You can also enter a sensor name which is not contained in the sensor list. When a determination is started there is a check whether the sensor is contained in the sensor list.

Selection	**Selection of configured sensors**

I(pol)

The polarization current is the current that is applied to a polarizable electrode during the voltametric measurement.

Selection	**5 µA** | **10 µA** | **20 µA** | **30 µA**
Default value	**10 µA**

Electrode test

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

For polarizable electrodes and the generator electrode, an electrode test can be carried out. The following will be tested:

- Polarizable electrodes
  - Is the electrode connected?
  - Is there a short circuit?

  The electrode test is carried out when this command is started.
- Generator electrode:
  - Is the electrode connected?
  - Is the generator system defective?
  - Is the resistance of the sample solution very high?

  The electrode test is carried out continuously during the execution of this command.

Temp. measurement

Type of temperature measurement.

Selection	**continuous** | **automatic** | **off**
Default value	**automatic**

continuous
A temperature sensor must be connected. The temperature is measured continuously.

automatic
If a temperature sensor is connected then the temperature will be measured continuously. Otherwise, the temperature entered manually will be used (see dialog of the titration and measuring parameters).

off
The temperature will not be measured. The temperature entered manually is used (see dialog of the titration and measuring parameters).

2.1.8 Stirrer

Under **[Stirrer]**, the parameters for the stirrer are edited.

Stirrer

Selection of the MSB connector the stirrer is connected to. Every MSB connector will always be displayed.

Selection	**1** | **2** | **3** | **4** | **off**
Default value	**1**

off
No stirrer will be used.

Stirring rate

Setting the stirring rate. It can be set in steps of –15 to +15. The default setting **8** corresponds to 1000 rpm. The formula for calculating the rotational speed is specified in *chapter 3.1, page 27*. The optimum stirring rate can be tested in the manual control.

The algebraic sign of the stirring rate changes the direction in which the stirring is done. When the stirrer is viewed from above, this means:

- "+": counterclockwise rotation
- "–": clockwise rotation

Range	**–15 ... 15**
Default value	**8**

Switch off automatically

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

If this parameter is activated, the stirrer will be switched off automatically at the end of the titration, measurement, etc.

2.2 Bromine index determination (BRC)

2.2.1 Control parameters

Under **[Control parameters]**, the control parameters for the endpoint are defined.

Endpoint at

Measured value for the endpoint.

Range	**–1250.0 ... 1250.0 mV**
Default value	**200.0 mV**
Selection	**off**

Titration rate

Three predefined sets of parameters can be selected for the titration rate.

Selection	**slow** | **optimal** | **fast** | **user**
Default value	**optimal**

slow
For samples with slow bromine addition.

optimal
For all standard titrations. The parameters have been optimized for the most frequent applications.

fast
For uncritical samples with fast bromine addition.

user
The individual titration parameters can be modified.

The settings of the individual titration rates are listed in *table 2, page 19*.

User-defined parameters

These parameters are only accessible when **Titration rate** = **User**.

Dynamics

This parameter defines the control range before the specified endpoint. Within the control range, the bromine is generated step by step, the generation is finely controlled. The closer the endpoint, the slower the bromine is generated until the rate defined under **Min. rate** is reached. The larger the control range, the slower the titration. Outside the control range, bromine is continuously generated, the rate is defined under **Max. rate**.

Range	**0.1 ... 1250.0 mV**
Default value	**400.0 mV**
Selection	**off**

Max. rate

Rate at which bromine is generated outside the control range.

Range	**10.0 ... 19876.0 µg/min**
Default value	**1000.0 µg/min**
Selection	**maximum**

Min. rate

Rate at which bromine is generated at the very beginning of the titration and in the control range at the end of the titration. This parameter has a decisive influence on the titration rate and thus also on the accuracy. The smaller the selected minimum rate, the slower the titration.

Range	**1.0 ... 999.9 µg/min**
Default value	**25.0 µg/min**

Table 2 Default values for the predefined titration rates for BRC

	Titration rate		
	slow	**optimal**	**fast**
Dynamics	400.0 mV	400.0 mV	400.0 mV
Max. rate	500.0 µg/min	1000.0 µg/min	2000.0 µg/min
Min. rate	15.0 µg/min	25.0 µg/min	50.0 µg/min

Stop criterion

Stop criterion

The titration is stopped when the endpoint has been reached and this stop criterion has been fulfilled. If no stop criterion has been selected then the titration will not be stopped. The stop conditions *(see Chapter 2.2.3, page 21)* always lead to a stop, even if the stop criterion has not been reached.

Selection	**drift** | **time** | **rel. drift** | **off** | **drift & time**
Default value	**drift & time**

drift
The titration is stopped when the stop drift has been reached.

time
The titration is stopped when the endpoint has been exceeded during a certain period of time (**Delay time**).

rel. drift
The titration is stopped when the sum of the drift at the start of the titration and the relative stop drift has been reached.

off
The titration will not be stopped until the stop conditions have been fulfilled.

drift & time
The titration is stopped when the stop drift has been exceeded during the time set and the endpoint has been reached.

Stop drift

This parameter can only be edited when **Stop criterion** = **drift** or **drift & time**.

The titration is stopped when the endpoint and the stop drift have been reached.

Range	**1 ... 999 µg/min**
Default value	**15 µg/min**

Delay time

This parameter can only be edited when **Stop criterion** = **time** or **drift & time**.

When the endpoint has been reached, the specified time is allowed to elapse after the last dosing and the titration is then stopped.

Range	**0 ... 999 s**
Default value	**40 s**

Relative stop drift

This parameter is can only be edited when **Stop criterion** = **rel. drift**.

The titration is stopped when the endpoint and the sum of the drift at the start of the titration and the relative stop drift have been reached.

Range	**1 ... 999 µg/min**
Default value	**5 µg/min**

2.2.2 Titration parameters

Under **[Titration parameters]**, the parameters influencing the sequence of the entire titration are defined.

Pause

Waiting time, for example for dissolving a sample. During this time no bromine is generated.

Range	**0 ... 999999 s**
Default value	**0 s**

Extraction time

Minimum duration of the titration. The titration will not be stopped during the extraction time, even if the endpoint has already been reached. The titration is however stopped if a stop condition is fulfilled during this time *(see Chapter 2.2.3, page 21)*.

Range	**0 ... 999999 s**
Default value	**0 s**

Temperature

Temperature entered manually. The temperature is being continuously measured when a temperature sensor is connected and when **Temp. measurement** = **automatic** or **continuous** is defined (see sensor dialog of the command).

Range	**–20.0 ... 150.0 °C**
Default value	**25.0 °C**

Time interval MP

Time interval for entering a measuring point in the measuring point list. The measuring point list is limited to 1000 measuring points.

Range	**0.1 ... 999999.0 s**
Default value	**2.0 s**

2.2.3 Stop conditions

Under **[Stop conditions]**, the conditions for stopping a titration are defined, if this does not occur automatically. This could be the case when the endpoint set is not reached or if the stop criterion *(see "Stop criterion", page 19)* is not fulfilled.

Stop time

The titration is stopped when the specified time has elapsed since the start of the titration.

Range	**1 ... 999999 s**
Selection	**off**
Default value	**off**

2.2.4 Conditioning

Under **[Conditioning]**, the conditions required for conditioning are defined.

Conditioning

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

If this parameter is activated, then the first time the titration is started the working medium will be titrated to the endpoint with the specified control parameters. The status is kept stable. The actual method run does not begin until **[START]** has been pressed once more.

Start drift

If the measured drift is smaller than this value for a certain time (so-called stabilizing time), **Conditioning OK** is displayed and the titration can be started. The stabilizing time is defined in the dialog **Conditioning / Conditioning options**.

Range	**1 ... 999 µg/min**
Default value	**20 µg/min**

Drift correction

The endpoint amount can be corrected taking the drift value into account. For this, the drift is multiplied with the drift correction time and this value is then subtracted from the endpoint amount. The drift correction time is the time interval between the end of conditioning and the end of the determination.

Selection	**auto** | **manual** | **off**
Default value	**off**

auto
The value of the current drift is applied automatically at the start of the titration.

manual
If the drift is known throughout a longer period of time, this can be entered manually.

off
No drift correction takes place.

Drift value

This parameter can only be edited when **Drift correction** = **manual**.

Drift for manual drift correction.

Range	**0.0 ... 999.9 µg/min**
Default value	**0.0 µg/min**

Measured value display

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

If this parameter is activated, the currently measured value is displayed during the conditioning.

Conditioning options [Cond. options]

Stabilizing time

Waiting time, during which the measured drift has to be smaller than the start drift defined until **Conditioning OK** is displayed. The start drift is defined in the dialog **Edit command / Conditioning**.

Range	**0 ... 999999 s**
Default value	**0 s**

Cond. stop time

Maximum permissible time over which conditioning may take place. Conditioning is stopped when the specified time has elapsed.

Range	**1 ... 999999 s**
Selection	**off**
Default value	**off**

Delay reconditioning

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

If this parameter is activated, the conditioning will not start before all the method commands have been processed. Otherwise, the conditioning will immediately start after the titration command.

Note

This parameter must be activated if commands follow which must not run simultaneously with the conditioning.

Example: Emptying the titration cell followed by adding new working medium.

2.2.5 Cell

Under **[Cell]**, the parameters for the titration cell are defined.

Generator electrode

Type of generator electrode.

Selection	**without diaphragm** | **with diaphragm**
Default value	**with diaphragm**

without diaphragm
Generator electrode without diaphragm.

with diaphragm
Generator electrode with diaphragm.

Generator current

Polarization current at the generator electrode.

Selection	**100 mA** | **200 mA** | **400 mA** | **auto**
Default value	**auto**

auto
The current is adapted to the conductivity of the reagent and automatically reduced near the endpoint.

Reagent monitoring

Selection of the reagent from the list of reagents. The selection depends on the titration mode. Reagents are defined under **System ▸ Reagents**.

Selection	**Selection of configured reagents** | **off**
Default value	**off**

off
The reagent monitoring is not active.

2.2.6 Control device

Under **[Control device]**, the control device is selected the determination is carried out with. Control devices are defined under **System ▸ Device manager**.

Note

This button is only displayed when several control devices have been configured.

Control device

Selection of the control device from the list of devices. Only those devices are displayed which are able to carry out the command. The control devices do not have to be connected. This allows to transfer methods more easily from one system to another.

Selection	**Selection of configured control devices**

2.2.7 Sensor

Under **[Sensor]**, the parameters for the sensor are edited.

Sensor

Selection of the sensor from the sensor list. The selection depends on the measuring mode. Sensors are defined under **System ▸ Sensors**. You can also enter a sensor name which is not contained in the sensor list. When a

determination is started there is a check whether the sensor is contained in the sensor list.

Selection	**Selection of configured sensors**

I(pol)

The polarization current is the current that is applied at a polarizable electrode during the voltametric measurement.

Range	**–125.0 ... 125.0 µA** (Increment: **2.5**)
Selection	**–1.0 µA** | **1.0 µA**
Default value	**1.0 µA**

Electrode test

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

For polarizable electrodes and the generator electrode, an electrode test can be carried out. The following will be tested:

- Polarizable electrodes
  - Is the electrode connected?
  - Is there a short circuit?

  The electrode test is carried out when this command is started.
- Generator electrode:
  - Is the electrode connected?
  - Is the generator system defective?
  - Is the resistance of the sample solution very high?

  The electrode test is carried out continuously during the execution of this command.

Temp. measurement

Type of temperature measurement.

Selection	**continuous** | **automatic** | **off**
Default value	**automatic**

continuous
A temperature sensor must be connected. The temperature is measured continuously.

automatic
If a temperature sensor is connected then the temperature will be measured continuously. Otherwise, the temperature entered manually will be used (see dialog of the titration and measuring parameters).

off
The temperature will not be measured. The temperature entered manually is used (see dialog of the titration and measuring parameters).

2.2.8 Stirrer

Under **[Stirrer]**, the parameters for the stirrer are edited.

Stirrer

Selection of the MSB connector the stirrer is connected to. Every MSB connector will always be displayed.

Selection	**1** | **2** | **3** | **4** | **off**
Default value	**1**

off
No stirrer will be used.

Stirring rate

Setting the stirring rate. It can be set in steps of –15 to +15. The default setting **8** corresponds to 1000 rpm. The formula for calculating the rotational speed is specified in *chapter 3.1, page 27*. The optimum stirring rate can be tested in the manual control.

The algebraic sign of the stirring rate changes the direction in which the stirring is done. When the stirrer is viewed from above, this means:

- "+": counterclockwise rotation
- "–": clockwise rotation

Range	**–15 ... 15**
Default value	**8**

Switch off automatically

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

If this parameter is activated, the stirrer will be switched off automatically at the end of the titration, measurement, etc.

3 Appendix

3.1 Stirring rate

The stirring rate can be adjusted in steps of –15 to +15.

The approximate rotational speed can be calculated with the following formula:

Rotational speed/min (r/min) = 125 · stirring rate

Example:

Stirring rate set: 8

Rotational speed in rpm = 125 · 8 = 1000

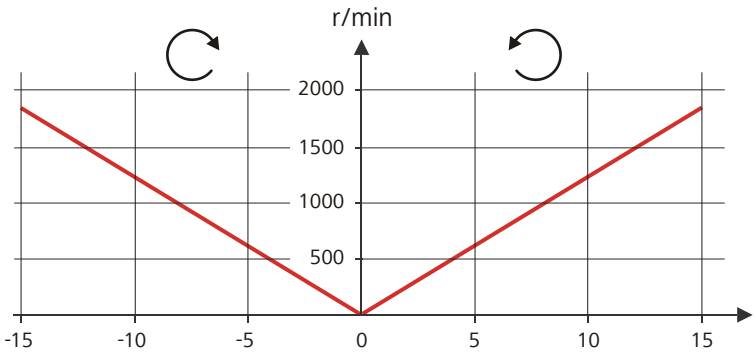


Figure 1 Rotational speed depending on stirring rate

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