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795 KFT Titrino

Short instructions for use

8.795.1023 04.2002 / pkl

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Summary of the most important signs

Signs in the Titrino dialog:

> Title of inquiry groups. Press <ENTER> to go to the inquiries.

: Values can be chosen with keys <←> or <→>.

Signs that are used in the instructions for use:

<> sign for "key", for example <ENTER> or <←>.

1 Getting started

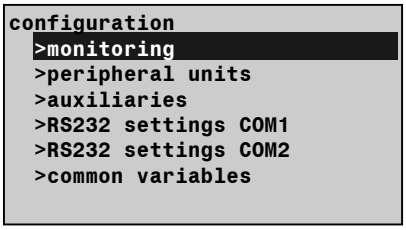
This is a step by step introduction into the operation of the Titrino.
You learn how to go round with the Titrino and you get an idea of the possibilities that the Titrino offers you.

1.1 Principle of data input

Press <STOP> if the Titrino is busy. It is now in the inactive standby state.

<CONFIG>

Then press the <CONFIG> key.

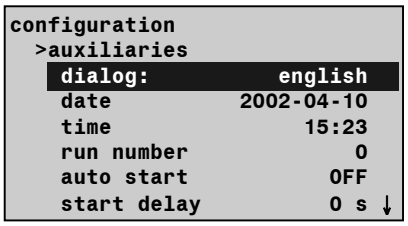


The first line indicates the "path", which means the place where you are right now: You pressed the <CONFIG> key and are now in the "configuration" inquiries.
In the next lines you find a list of the inquiry groups of key <CONFIG>. They are all marked with ">". This sign means that you get to the inquiries with <ENTER>.
The inquiry group ">monitoring" is inverted, which means that the cursor is placed on this line. You can move the cursor up and down with the <↑> and <↓> keys.

<↓>
<ENTER>

Set the cursor to ">auxiliaries" and open this inquiry group with <ENTER>.

The arrow in the lower right corner means that there are more inquiries. They appear if you move the cursor below.



Set the cursor to the inquiry "dialog:". You may select a different dialog language with the keys <←> or <→> (Key <→> "turns" forward, <←> backward).

<←> or <→>
<ENTER>

Select any language and press <ENTER>.

Note the sign ":" in the text "dialog:". If you see this sign in the dialog text, you can always use the <←> or <→> keys to select a value.

Readjust the language to "english" again.

2x <QUIT>

Quit the inquiries in the <CONFIG> key pressing <QUIT> twice.

1.2 Karl Fischer titer determination

To facilitate the the use of the instrument, a certain number of tested titration methods is stored in the 795 KFT Titrino.

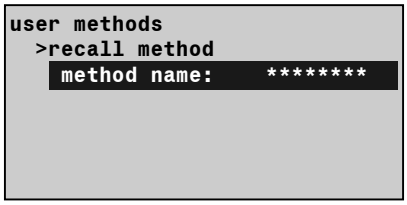
Now, we would like to perform a water determination using these methods. Therefor, the titer of the Karl Fischer reagent has to be determined first. At the same time, you learn how to store the titer as a common variable for following titrations.

First, a completely equipped KF titration vessel (KF equipment 6.5609.000) has to be installed on your stirrer or Ti-Stand. Mount an Exchange Unit with KF reagent on the Titrino and connect a double platinum electrode to the Pol-input ("Pol").

Recall a method from the method memory

<USER METH>
<ENTER>

Stored methods can always be recalled into the working memory. Recall the KFT Ipol method "H2OTiter" from the method memory.

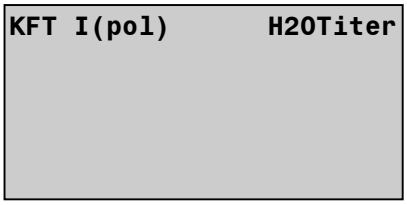


Press <USER METH> and <ENTER> to go to ">recall method".

You can select the method "H2OTiter" with <←> or <→> or enter its name directly.

<←> or <→>
<ENTER>

Recall the method with <ENTER>.

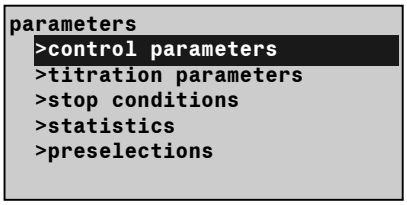


The mode (KFT Ipol) and the name of the method are displayed.

The method is now ready to work.

Editing method parameters

<PARAM>

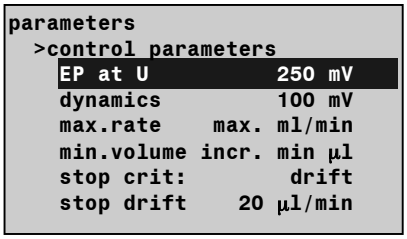


For a better understanding of the titration method, you can have a look at the control parameters and the titration parameters of the method that you have loaded. If necessary these can be edited.

Press the <PARAM> key.

<ENTER>

Press <ENTER> to open the dialogue "control parameters".



Because the parameter settings are optimized for most water determinations, you do not need to change the parameters.

If you like to change any parameter however, move the cursor to the corresponding line with the <↓> key, enter the parameter (see page 1) and confirm the entry with <ENTER>.

<QUIT>

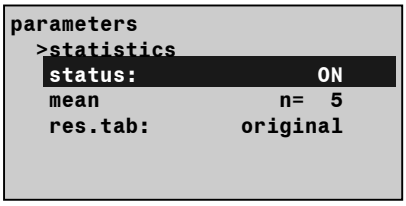
Press <QUIT> to quit the inquiry of the control parameters.

In the same way, you can edit the titration parameters and the stop conditions.

Statistics calculation

<↓>
<ENTER>

Place the cursor on ">statistics". Press <ENTER> to go to this inquiry group.



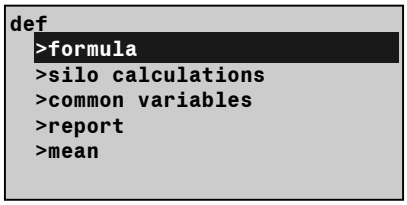
The statistics calculations are switched on.
Place the cursor on "mean" and enter n = 3, because we would like to calculate the mean of 3 single determinations. Confirm the entry with <ENTER>.

<↓>
<3>
<ENTER>
2x <QUIT>

Quit the inquiry by pressing <QUIT> twice.

Calculation of the titer: entry of a formula

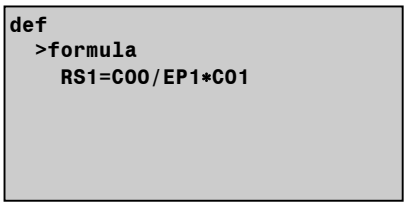
<DEF>



You may calculate the titer with the endpoint.
Press <DEF>.

Press <ENTER> to move on to the formula entry. The display now shows "RS? ".
Press "1", i.e. the first formula.

<ENTER>
<1>



There is already stored a formula to calculate the titer (result 1) in the method. You could now edit the formula:

RS1 = C00/EP1*C01
titer = sample size of standard / end point * factor

factor = water content of the standard in mg/g

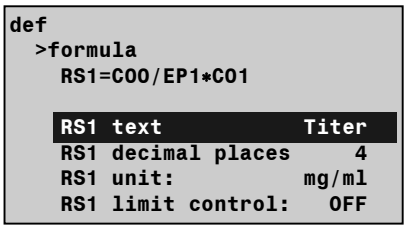
Note here the inscriptions in the right corner of the keys and the numbers. You can use mathematical operations, parentheses as well as the following symbols:

EP# EP's with 1-digit number, e.g. EP1.
RS# Results, e.g. RS1 could be used in a second formula.
C## Calculation values, e.g. C01 (factor in the titer calculation that depends on the standard that is used). C00 is reserved for the sample size. The meaning of the different calculation values is given on page 15.

You can delete the symbols one by one with <CLEAR>.

<ENTER>

Confirm the formula with <ENTER>.



For the result output, a text is already entered.
The number of decimal places for the titer is 4.
The unit can be selected with <←> or <→> or entered as text.

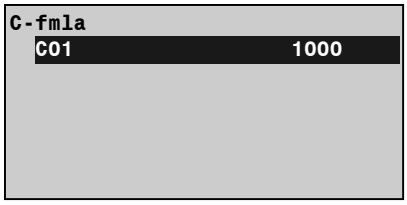
2x <QUIT>

You do not need to change the entries and can quit the formula entry by pressing <QUIT> twice.

To obtain the correct result for the titer, you have to adapt the calculation constant C01.

Entry of the calculation constants

<C-FMLA>



Press <C-FMLA> to enter the calculation values.
The constants which have been used in the formula are requested:
C01: Factor for the calculation of the titer =1000
With this factor, the water content of the standard is entered:

Standard used	Sample size in	Factor
water	g	1000
water	µL	density (H_2O) = 1 g/mL
methanol	g	water content in mg/g
methanol	mL	water content in mg/mL
methanol	µL	0.001 * water content in mg/mL

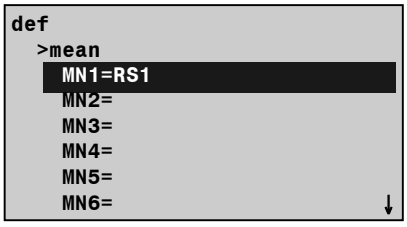
<QUIT>

Press <QUIT> to quit the inquiry.

Defining a common variable

<DEF>
<↓>
<ENTER>

Press the <DEF> key and open the inquiry group ">mean".



You see here that result RS1 is assigned to the mean value MN1.

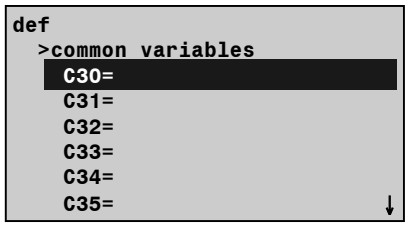
What happens to this mean value?
It is assigned to a common variable (see below).

<QUIT>

Quit the inquiry with <QUIT>.

<↑>
<ENTER>

Open the inquiry group ">common variables" now.



Values that should be stored permanently for later use can be assigned to common variables. The values of the common variables are preserved for all methods, even during power ON/OFF, until they are overwritten or deleted.
Up to 10 common variables (C30...C39) are available.

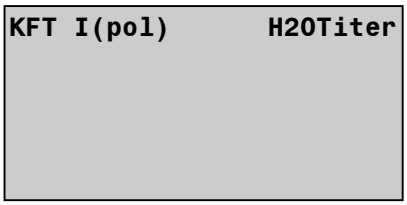
<↓>

If you move the cursor to the last line, you see that the mean value MN1 is assigned to common variable C39.
Not only mean values, but also results, endpoints or variables can be assigned.

2x <QUIT>

Quit the inquiry with <QUIT>.

KF titer determination

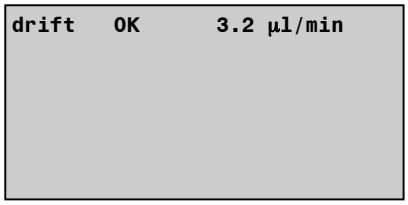


You are now ready to titrate..

Put 20 mL methanol (solvent, resp.) into the titration vessel, switch on the stirrer and press <START>.

<START>

Now, the solution is conditioned to the first endpoint defined in the method. When conditioning is terminated, "drift OK" is displayed.



In the meantime tare a syringe with a long needle filled with distilled water on a high precision balance.

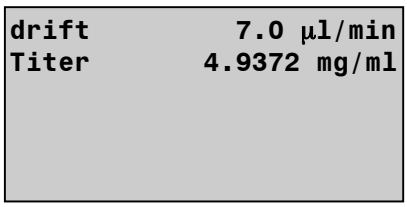
The titration is started with <START>.

<START>

Now, the Titrino requests the sample size. Puncture the septum and add 2–3 drops of water. Weigh back the syringe .
Or you can add exactly 10 µL water using a microsyringe. If you use a methanol standard, you need to adjust the calculation constants (see page 5).

Sample size
<ENTER>

Enter the sample size in gram and confirm it with <ENTER>.



During the titration, the titration curve is displayed. The titration will be terminated when the endpoint is reached. A report will be printed on the connected printer. (If no printer is connected, error 42 appears. You can delete the print job with <QUIT>.)

After the titration, conditioning continues and the current drift is displayed.

see above

Perform two more titer determinations by pressing <START>, as soon as the solution is conditioned.

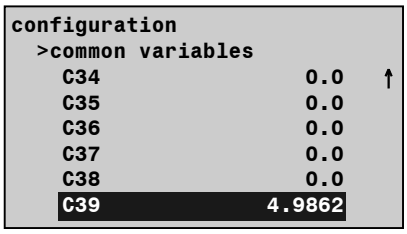
<STOP>

After the third titration you stop conditioning with <STOP>.

<CONFIG>
<↓>
<ENTER>
<↓>

Press the <CONFIG> key to open the inquiry ">common variables".

If you move the cursor to the last line, you see that the mean value of the KF titer is assigned to common variable C39.



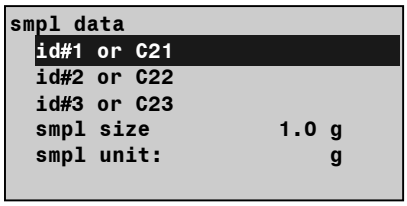
2x <QUIT>

Quit the inquiry with <QUIT>.

Entry of the sample size

<SMPL DATA>

In this method, the sample size is requested automatically after the start of the method. If you like to change the sample size, you can enter it with the <SMPL DATA> key.



Enter it with the <SMPL DATA> key:
Place the cursor to "smpl size" and enter the value. Confirm with <ENTER>.

<↓>

<ENTER>
<←> or <→>
<ENTER>

Select the unit for the sample size using the <←> or <→> keys and confirm with <ENTER>.

The result is recalculated.

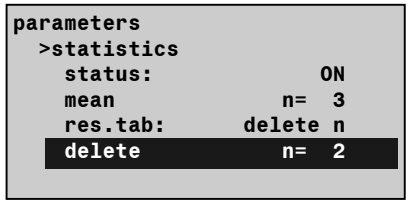
Delete a result from statistics calculation

<PARAM>
<↓>
<ENTER>
<↓>
<←> or <→>
<ENTER>

You want to delete, e.g., the second result of your titer determination. Press the <PARAM> key and open the inquiry group ">statistics". Place the cursor on "res.tab:" and choose "delete n" with the keys <←> or <→>. Confirm with <ENTER>.

<2>

Enter "n= 2".



If you confirm your entry with <ENTER> now, the result of your second titer determination will be deleted.

Quit the inquiry with <QUIT>.

<ENTER>
<QUIT>

The mean and the standard deviation are recalculated.

If you have connected a printer, you can print a new result report using the keys <PRINT><REPORTS> <ENTER> or a new statistics table, in which the deleted result is labeled with "*" using <PRINT><STATISTICS> <ENTER>.

1.3 Karl Fischer water determination

This method "KF" can be generally used for the determination of the water content of samples without previous blank value determination.

Adjust calculation constants

Load the method KFT Ipol "KF" from the method memory.

<DEF>
<ENTER>
<1>
<ENTER>

Press the <DEF> key and enter the formula inquiry to see, which calculation constants are used in the formula (see page 4).

```
def
  >formula
    RS1=EP1*C39*C01/C00/C02

    RS1 text              Water
    RS1 decimal places        2
    RS1 unit:                 %
    RS1 limit control:      OFF
```

As you can see, the common variable C39 is used, i.e. for the calculation of the water content the previously determined titer is taken into account automatically (see page 7). Thus for different titration reagents, each titer can be stored as a separate common variable.

If the water content is calculated in % and the sample size is entered in g, the standard values C01 = 0.1 and C02 = 1 can be used. Otherwise the values can be adjusted according to the following table as described on page 5.

Unit RS	Sample size in..	C01	C02
%	g	0.1	1
%	mg	100	1
%	mL	0.1	Density of Sample
ppm	g	1000	1
ppm	mL	1000	Density of Sample
ppm	µL	1000 000	Density of Sample
mg/mL	g	Density of Sample	1
mg/mL	mL	1	1
g/L	g	Density of Sample	1
g/L	mL	1	1
mg	1	1	1
mL	1	1	1000∗Density H_2O
mg/pc	pc	1	1

With the keys <PRINT><→><ENTER> the formula and the calculation constants can be printed. Press the cursor key until "calc" is displayed on the right.

KF titration

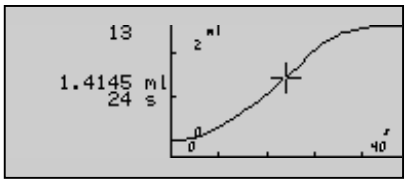
Exchange the used methanol against fresh one and perform a water determination of a moist solvent, as an example titration. Proceed as in the KF titer determination.

You can find some useful hints for the sample addition on page 23 of the Instructions for Use.

Viewing the titration curve

<CURVE>

You can view the titration curve after the titration using the key <CURVE>.



With the keys <↑> and <↓> you can trace the curve. To the left volume and time of the current point are displayed. On the first line, you will find the index of the point.

<CURVE>

Quit the curve display with <CURVE>.

1.4 Printing reports

If you have a printer connected, you can select the report blocks to be printed out automatically at the end of the titration.

<DEF>
<↓>
<ENTER>
<←> or <→>

Press <DEF> and place the cursor to ">report".
Press <ENTER> to define the report output.
(If you have your printer connected to COM2 press <ENTER> once again.)

```
def
  >report
    report COM1:full;curve
```

Select the individual report blocks with the <←> or <→> keys. Use a ";" as delimiter between the report blocks. If you wish to print out a curve and a full result report, set "full;curve".

With <CLEAR> you can delete individual report blocks.

<ENTER>

2x <QUIT>

Confirm the entry with <ENTER> and quit the inquiries with <QUIT>.

Press <PRINT> <REPORTS> <ENTER> to print your reports. Your printout will look as follows:

```
 'fr
795 KFT Titrino       01103     795.0010
user                  pkl
date  2002-04-10    time  17:40        4
KFT Ipol       KF
smpl size     0.879 g
EP1          2.5725 ml
Water          1.44 %
Titer        4.9372 mg/ml
            mean( 3)    +/-s          s/%
Water          1.46    0.027 %       1.86
device label      Titr 1       sign:
          ============
```

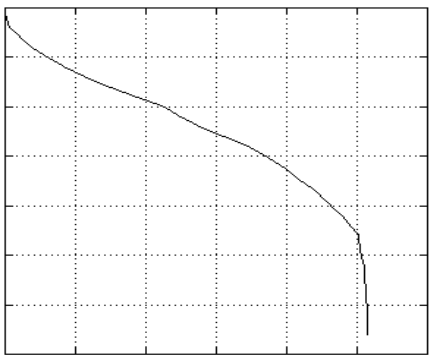
Identification of report type (full result report)
Instr. type with identification and program version
User (only if entered)

Calculated result

Statistics

Device label (only if entered)

```
 'cu
795 KFT Titrino       01103     795.0010
user                  pkl
date  2002-04-10    time  17:40        4
                        KFT Ipol       KF
5.0  s/div      dV=0.5 ml/div
0.00                                3.00
```



```
          ============
```

Identification of report type (curve)

Scaling of time and volume axis

Curve

1.5 Storing methods

You learn how to operate the method memory

Storing a method in the method memory

<USER METH>
<↓>
<ENTER>

Press <USER METH>, place the cursor to ">store method" and press <ENTER>.

```
user methods
  >store method
    method name:

  ABCDEFGHIJKLMNOPQRSTUVWXYZ
  abcdefghijklmnopqrstuvwxyz
  µ°!"#$&'()*+,-./ 0123456789
```

Press <CLEAR> to delete the existing method name.
Open text entry with key <ABC>.
A field with letters and symbols appears. You can select a letter with the cursor keys and confirm this letter with <ENTER>. The letter then appears in the input field of the method name.
Enter an identification for your method.

Entries <ENTER>

If you made a typing error, you can delete the characters one by one with <CLEAR>.

<QUIT>

Quit the text input with <QUIT> when you completed your name.

<ENTER>

Confirm the name with <ENTER>. The method will be stored in the method memory.

The method runs now under the new name.

A list of contents of the method memory can be printed with the key sequence <PRINT><USER METH> <ENTER>.

```
 'um
795 KFT Titrino     01103       795.0010
date  2002-04-10    time  16:54
user methods                      bytes
KFT  Ipol     H2OTiter              152
KFT  Ipol     TarTiter              152
KFT  Ipol     Blank_KF              134
KFT  Ipol     KF-Blank              208
KFT  Ipol           KF              172
KFT  Ipol       5Titer              152
KFT  Ipol       5Deter              172
KFT  Ipol     5Deter-B              208
KFT  Ipol       2Titer              152
KFT  Ipol       2Deter              172
KFT  Ipol     2Deter-B              208
KFT  Ipol       1Titer              152
KFT  Ipol       1Deter              172
KFT  Ipol     1Deter-B              208
KFT  Ipol     KetTiter              152
KFT  Ipol     KetDeter              172
KFT  Ipol     KetDet-B              208
KFT  Ipol     BrNumber              212
       remaining bytes            96716
          ------------
```

2 Titration parameters

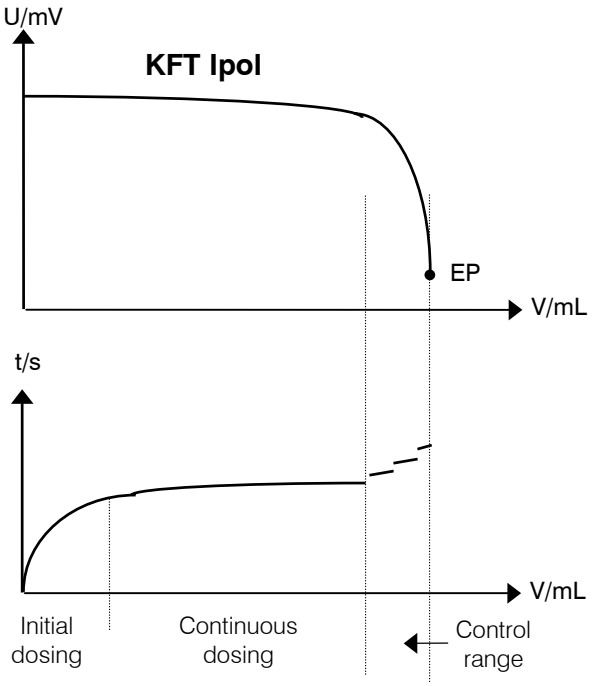
This chapter gives you a survey over the titration parameters. The standard values are printed in bold face in the following tables.

If you are looking for more information to the different quantities, you will find the display text as a keyword in the index of the Instructions for Use.

2.1 The mode KFT

The control parameters can be set according to your samples. The default parameters are already set to get satisfactory results. Optimize the control parameters for specific samples only.

During the titration, reagent dosing is carried out in 3 phases:



1. Initial dosing:
   Here the dosing rate increases constantly up to "max.rate".

2. Continuous dosing:
   Dosing is performed at the maximum rate "max.rate" until the control range (dynamics) is reached.

3. Control range (dynamics):
   In this range, dosing is performed in single steps. The last dosing steps are controlled by the parameter "min.volume incr.".

Remarks:
- Titer determination should have the same modes and the same parameters as the sample titrations.
- In most cases the preset default parameters provide precise and reproducible results.
- Ipol gives relatively steep curves. They are flatter with Upol.

2.2 Mode KFT, parameters

Display	Meaning	Input range
>control parameters	Controlling parameters for KFT.	
EP at ...	Endpoint for Ipol. Endpoint for Upol	U: –2000 ... **250**...2000 mV I: –200.0... **25.0**...200.0 µA
dynamics	Distance from EP where constant dosing stops and controlling begins.	U: 1...**100**...2000 mV I: 0.1...**10**...200.0 µA
max.rate	Maximum dosing rate.	0.01...150 mL/min, **max**.
min.volume incr.	Minimum volume increment	0.1...9.9 µL, **min**
stop crit:	Type of stop criteria.	**drift**, time
stop drift	Titration stops if stop drift is reached.	1...**20**...999 µL/min
t(delay)	Stop if there is no dosing during t(delay).	0...**10**...999 s, INF
stop time	If t(delay) is "INF": stop time.	0...999999 s, **OFF**
>titration parameters	General titration parameters.	
titr.direction:	+: Titration to higher voltage or current. auto: Direction is set automatically.	+, **–**, auto
pause 1	Waiting time **before** start volume.	**0**...999999 s
start V:	Type of start volume: absolute or relative.	abs., rel., **OFF**
start V	Volume for **absolute** start volume.	**0**...999.99 mL
factor	Factor for calculation of **relative** start volume: factor * smpl size.	**0**...±999999
dos.rate	Dosing rate for start volume.	0.01...150 mL/min, **max.**
pause 2	Waiting time **after** start volume.	**0**...999999 s
extr.time	Extraction time.	**0**...999999 s
I(pol)	Polarization current for Ipol or	–127...**50**...127 µA or.
U(pol)	-voltage for Upol in 10 mV-intervals.	–1270...**400**...1270 mV
electrode test:	Performing of electrode test	ON, **OFF**
temperature	Titration temperature.	–170.0...**25.0**...500.0 °C
time interval	Time interval for measured value acquisition.	1...**2**...999999 s
>stop conditions		
stop V:	Type of stop volume: absolute or relative.	**abs.**, rel., OFF
stop V	Volume for **absolute** stop volume.	0...**99.99**...9999.99 mL
factor	Factor for calculation of **relative** stop volume: factor * smpl size.	0...±**999999**
filling rate	Filling rate after the titration.	0.01...150 mL/min, **max.**
>statistics		
status:	Status of statistics calculation.	ON, **OFF**
mean n=	Number n of single values for statistics.	**2**...20
res.tab:	Result table for statistics calculation.	**original**, delete n, delete all
delete n=	Delete data from sample number n.	**1**...20
>preselections		
conditioning:	Automatic conditioning of titration vessel.	ON, **OFF**
display drift:	Display of drift during conditioning.	**ON**, OFF
drift corr:	Type of drift correction.	auto, man., **OFF**
drift value	Value for manual drift correction.	**0.0**...99.9 mL/min
req.ident:	Request of identifications after start.	id1, id1 & 2, all, **OFF**
req.smpl size:	Request of sample size after start.	value, unit, all, **OFF**
limit smpl size:	Limit control of sample size.	ON, **OFF**
oven:	RS-COM of Titrino where the oven is connected.	COM1, COM2, **no**
activate pulse:	Pulse output on I/O line L6.	first, all, cond., **OFF**

2.3 Calculations

The results are calculated with the formulas given in the method. For the calculation, the raw values, determined in the method (EP's and C variables), are available.
The results and the raw values can be assigned for further calculations, e.g. for statistics or as common variables.

Formula input and assignments, key <DEF>

Display	Meaning	Input range
>formula	Input of formula.	
RS?	Enter result number.	1...9
RS1=EP1*CO1/C00	Enter formula by means of 3rd functions of keyboard.	
RS1 text	Text for result output.	**RS1** or up to 8 ASCII characters
RS1 decimal places	Number of decimal places for result output.	0...**2**...5
RS1 unit:	Select result unit.	**%**, ppm, g/L, mg/mL, mg/pc, mol/L, mmol/L, g, mg, mL, s, mL/min, no unit or up to 6 ASCII characters
RS1 limit control:		ON, **OFF**
RS1 low lim.	Limit control of the result.	**0.0**...999 999
RS1 up lim.	Lower limit for RS1.	0.0...**999 999**
RS1 L13 output:	Upper limit for RS1 Output on line L13 if the result is out of limits.	**OFF**, active, pulse
	Enter values of calculation variables with <C-FMLA>.	
>silo calculations	Allocations for silo calculation, see page 41 of the Instructions for Use.	
C24=	Enter values to be stored in the silo memory.	RSX, EPX, CXX
C25=		
match id:	Indication which id's must coincide for the statistical evaluation in the silo memory.	id1, id1 & 2, all, **OFF**
>common variables	Allocations of common variables C30...C39.	
C30=	Assign RSX, EPX, CXX, or MNX.	RSX, MNX, EPX, CXX
>report	Selection of report blocks for data output at COM1.	
report COM1:	Depends on the selected mode. If you wish several reports, use ";" as separator.	param, full, short, mplist, curve, scalc full, scalc srt, calc, ff
report COM2:	As for COM1.	
>mean	Allocations for statistics.	
MN1=	Assign RSX, EPX, or CXX.	RSX, EPX, CXX

Meaning of the calculation variables

C variables are

- determined by the method (C24...C27, C4X)
- entered as sample specific data (C00, C21...C23)
- given as fixed constants in the methods (C01...C19)

Variable	Meaning
C00	Sample size, key <SMPL DATA>.
C01...C19	Method specific calculation values, such as molecular mass, factors, key <C-FMLA>.
C21...C23	Sample specific calculation values, such as dilution factors, key <SMPL DATA>.
C24, C25	Variables for storing determination results in the silo memory.
C26, C27	Means from silo calculations(C26 is mean of C24 and C27 is mean of C25).
C30...C39	Common variables, e.g. for titer.
C40	Initial measured value of the sample, last measured value for MEAS.
C41	End volume.
C42	Determination time.
C43	Volume drift with conditioning.
C44	Temperature.
C45	Dispensed start volume.

Sample data, key <SMPL DATA>

- Sample identifications or sample specific calculation values C21...C23
- Sample size C00

For working with the silo memory, see page 17.

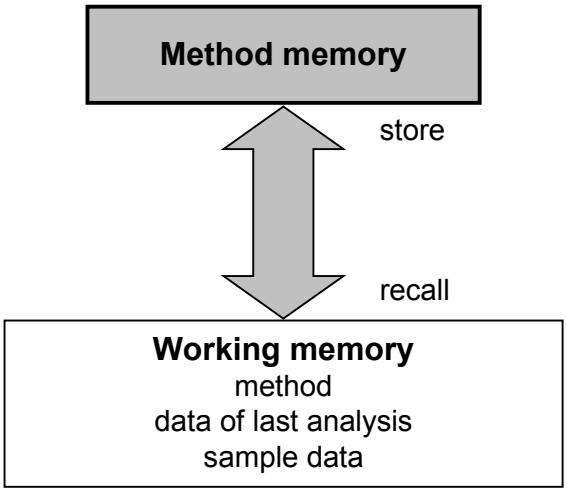
Display	Meaning	Input range
	Inquiries with silo = OFF (LED "silo" is OFF):	
id#1 or C21 id#2 or C22 id#3 or C23	Sample identification. Can be used as sample specific calculation values.	up to 8 ASCII characters or 0...±999999
smpl size	Sample size	–999999...**1**...999999
smpl unit:	Unit of sample size	**g**, mg, mL, µL, pc, no unit or up to 5 ASCII characters

3 Other functions

This chapter gives you a survey over other functions of the Titrino.
If you are looking for more information to the different quantities, you will find the display text as a keyword in the index of the Instructions for Use.

3.1 Method memory

Methods can be stored in the method memory:



Method memory, key <USER METH>

Display	Meaning	Input range
`>recall method` `method name:`	Recall method from the method memory to the working memory.	up to 8 characters
`>store method` `method name:`	Store method from the working memory to the method memory.	up to 8 characters
`>delete method` `method name:`	Delete method from the method memory.	up to 8 characters

3.2 User name, key <USER>

If a user name is entered it will be printed in the print-out.

Display	Meaning	Input range
name:	User name. Select a name with keys <←> or <→> or enter the name directly (see text entry, page 11).	up to 10 ASCII characters
>delete name:	Deletes a user name.	up to 10 ASCII characters

3.3 Sample data, keys <SMPL DATA> and <SILO>

In the silo memory sample data can be stored on reserve. For working without the silo memory see page 15.
Press the key <SILO> for working with the silo memory, and the key <SMPL DATA> to input data.

Display	Meaning	Input range
>edit silo lines	Input for the silo memory:	
silo line	Silo line number.	**1**...255
method:	Method name.	up to 8 ASCII characters
id#1 or C21 **id#2 or C22** **id#3 or C23**	Sample identification. Can be used as specific calculation values.	up to 8 ASCII characters
smpl size	Sample size	–999999...**1**...999999
smpl unit:	Unit of sample size.	**g**, mg, mL, µL, pc, no unit or up to 5 ASCII characters
>delete silo lines	Delete individual silo lines.	
delete line n	Line number of the line to be deleted.	1...255, **OFF**
>delete all silo lines	Delete all silo lines.	
delete all:	Confirmation.	ON, **OFF**
cycle lines:	With "ON", worked off silo lines will be copied to the highest line of the silo memory.	ON, **OFF**
save lines:	Determination results will be stored as C24 or C25 in the silo memory according to the allocations in the methods, see page 14.	ON, **OFF**

3.4 Configuration, key <CONFIG>

Display	Meaning	Input range
>monitoring	Monitoring functions	
validation:	Validation of Titrino.	ON, **OFF**
time interval	Time interval for the validation.	1...**365**...9999 d
time counter	Time elapsed since the validation.	**0**...9999 d
service:	Service of instrument.	ON, **OFF**
next service	Date for the next service.	YYYY-MM-DD
system test report:	Print-out of the system test report after switching on the Titrino.	ON, **OFF**
>peripheral units	Settings of peripheral units.	
send to COM1:	Selection of printer at COM1.	Epson, Seiko, Citizen, HP, **IBM**
send to COM2:	as for COM1.	
man.reports to COM:	Output of manually triggered reports.	**1**, 2, 1&2
balance:	Selection of balance.	**Sartorius**, Mettler, Mettler AT, AND, Precisa
stirrer control:	Stirrer control in titration sequences.	ON, **OFF**
remote box:	Connection of a remote box.	ON, **OFF**
keyboard:	Type of the PC keyboard connected to the remote box.	**US**, deutsch, francais, espanol, schweiz.
barcode:	Target for data eneterd by a barcode reader.	**input**, method, id1, id2, id3, smpl size
>auxiliaries	General settings.	
dialog:	Selection of dialog language.	**english**, deutsch, français, español, italiano, portugese, svenska
date		YYYY-MM-DD
time		HH:MM
run number	Current run number for result output.	**0**...9999
auto start	Automatic starts of titrations.	1...9999, **OFF**
start delay	Waiting time before start of titration.	**0**...999999 s
result display:	Result display at the end of determination.	**bold**, standard
dev.label	Device label.	up to 8 characters
program	Program version.	read only
>RS232 settings COM1	RS232 settings for COM1.	
baud rate:	Baud rate.	300,600,1200,2400, 4800, **9600**, 19200, 38400, 57600, 115200
data bit:	Data bit.	7, **8**
stop bit:	Stop bit.	**1**, 2
parity:	Parity.	**none**, odd, even
handshake:	Handshake.	**HWs**, SWchar, SWline, none
>RS232 settings COM2	as for COM1.	
>common variables	Values of common variables C30...C39.	

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