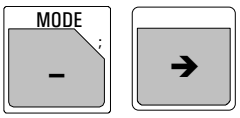
# DMP Titrino 785

Metrohm

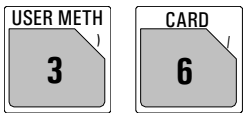
## Quick References

8.785.1013

## Mode selection




Press key <MODE> until the desired mode is displayed, press <ENTER>, select desired measured quantity with the cursor keys <➔> or <🡐>, and confirm with <ENTER>.

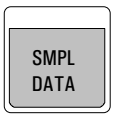



Recall method from internal method memory (key <USER METH>) or from card (key <CARD>):
>Recall method <ENTER>
Select method name with <➔> or <🡐> or by entering its name.

**Modes:**

| | | |
|---|---|---|
| **DET** | **pH, U, Ipol, Upol** | Dynamic Equivalence Point Titration. |
| **MET** | **pH, U, Ipol, Upol** | Monotonic Equivalence Point Titration. |
| **SET** | **pH, U, Ipol, Upol** | Set Endpoint Titration. |
| **MEAS** | **pH, U, Ipol, Upol, T** | MEASuring. |
| **CAL** | | CALibration. |
| **TIP** | | Titration-Procedure. Linking of various commands and methods to a titration procedure. |

## Sample data

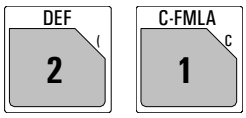



Input for sample data:
- Sample identification. Can be used as sample specific calculation values
- Sample size

Inquiries with silo = OFF (LED "silo" is OFF).

| *Display* | *Initial value* | *Meaning* | *Input range* |
|---|---|---|---|
| **id#1 or C21**<br>**id#2 or C22**<br>**id#3 or C23** | | Sample identification. Can be used as sample specific calculation values C21...C23. | up to 8 ASCII characters |
| **smpl size** | **1.0 g** | Sample size, value C00. | 0...±999 999 |
| **smpl unit:** | **g** | Unit of sample size. | g, mg, ml, ul, pc or up to 5 ASCII characters |

# Calculations and definitions for data output




Input of formula.
Preselection of automatic report output at the end of a determination.
Allocations of values for statistics, common variables, silo calculations and temporary variables (TIP calculations).

| *Display* *Initial value* | *Meaning* | *Input range* |
|---|---|---|
| **>formula** | **Input of formulas** | |
| **RS?** | Enter formula number. | 1...9 |
| **RS1=EP1*C01/C00** | Enter formula by means of 3rd functions of keyboard and confirm with <ENTER>. CXX are calculations variables, see below. | |
| **RS1 text RS1** | Text for result output. | RS1 or up to 8 ASCII characters |
| **RS1 decimal places 2** | Number of decimal places for result. | 0...5 |
| **RS1 unit: %** | Selection of result unit. Select the unit with <➔> or <🡐> or enter a unit. | up to 6 ASCII characters |
| **RS1 limit control: OFF** | Limits for the result may be entered. | ON, OFF |
| | Enter the values of calculation variables C01..C19 with <C-fmla>. | |
| **>silo calculations** | **Allocations for silo calculations** | |
| **>common variables** | **Allocations for common variables** | |
| **>report** | **Selection of report blocks for data output** | |
| **report COM1:** | Output to COM1. Identical for COM2.<br>Press <➔> or <🡐> for selection. If you wish several reports, use ";" as separator. | full, short, mplist, curve, derive, comb, scalc full, scalc srt, calc, param, calib, ff |
| **>mean** | **Allocations for statistics calculations** | |
| **>temporary variables** | **Allocations for calculations in TIP** | |

# Meaning of the calculation variables CXX

| *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. |
| **C30...C39** | Common variables, i.e. for titer. |
| **C40** | Initial measured value of the sample, in MEAS last measured value. |
| **C41** | End volume. |
| **C42** | Determination time. |
| **C43** | Volume drift for SET with conditioning. |
| **C44** | Temperature. |
| **C45** | Dispensed start volume. |
| **C46** | Asymmetry-pH (calibration). |
| **C47** | Electrode slope (calibration). |
| **C48** | Volume at maximum voltage in the curve. |
| **C49** | Volume at minimum voltage in the curve. |
| **C51...C59** | Fix EP for DET and MET. |
| **C61...C69** | pK/HNP values for DET and MET. |
| **C70...C79** | Temporary variables for calculations in TIP. |

# Configuration


Monitoring of various GLP functions
Settings of peripheral units
General settings
Settings of RS232 interface, values of the common variables
Settings for dosing units

| *Display* *Initial value* | *Meaning* | *Input range* |
|---|---|---|
| **>monitoring** | **Monitoring functions** | |
| **validation: OFF** | Monitoring of a time interval for instrument validation. | ON, OFF |
| **calibration: OFF** | Monitoring of a time interval for pH calibration. | ON, OFF |
| **service: OFF** | Monitoring of the date for the next instrument service. | ON, OFF |
| **system test report: OFF** | Print-out of a system test report after switching on. | ON, OFF |
| **>peripheral units** | **Settings of peripheral units** | |
| **send to COM1: IBM** | Selection of printer at COM1. Identical for COM2. | Epson, Seiko, Citizen, HP, IBM |
| **man.reports to COM: 1** | Output of manually triggered reports. | 1, 2, 1&2 |
| **balance: Sartorius** | Selection of balance. | Sartorius, Mettler, Mettler AT, AND, Precisa |
| **stirrer control: OFF** | Stirrer control in the titration sequences. | ON, OFF |
| **remote box: OFF**<br>**keyboard: US**<br><br>**barcode: input** | Connection of a remote box.<br>Type of connected PC keyboard.<br><br>Target of data from the barcode reader. "input" means current input field. | ON, OFF<br>US, Deutsch, français, espanol, schweiz.<br>input, method, id1, id2, id3, smpl size |
| **>auxiliaries** | **General settings** | |
| **dialog: english** | Selection of dialog language. | english,deutsch,français,español, italiano, portugese, svenska |
| **date YYYY-MM-DD**<br>**time HH:MM** | | |
| **run number 0** | Current run number for result output. | 0...999 999 |
| **auto start OFF** | Automatic starts of titrations. | 1...9999, OFF |
| **start delay 0 s** | Waiting time before start of titration. | 0...999 999 s |
| **result display: bold** | Result display at the end of the determinations. | bold, standard |
| **device label** | Device label. | 8 ASCII characters |
| **program 785.0010** | Program version. | read only |
| **>RS232 settings COM1** | **RS232-sttings for COM1. Identical for COM2.** | |
| **baud rate: 9600** | Baud rate. | 300,600,1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 |
| **data bit: 8** | Data bit. | 7, 8 |
| **stop bit: 1** | Stop bit. | 1, 2 |
| **parity: none** | Parity. | none, odd, even |
| **handshake: HWs** | Handshake. | HWs, SWchar, SWline, none |
| **>common Variables** | **Values of common variables** | |

# Parameters for DET and MET

| *Display* *Initial value* | *Meaning* | *Input range* |
|---|---|---|
| **>titration parameters** | **General titration parameters** | |
| **meas.pt.density 4** | Parameter for DET: Measuring point density. 0 is highest. | 0...9 |
| **min.incr. 10.0 ul** | Parameter for DET: Minimum increment. | 0...999.9 ul |
| **[V step 0.10 ml]** | Parameter for MET: Volume increment. | 0...9.999 ml |
| **dos.rate max. ml/min** | Dosing rate for increments. | 0.01...150 ml/min, max. |
| **signal drift 50 mV/min** | Drift criterion for measured value acquisition. | 0.5...999 mV/min, OFF |
| **equilibr.time 26 s** | Waiting time for measured value acquisition. | 0...9999 s, OFF |
| **start V: OFF**<br>**start V 0.00 ml**<br>**factor 0**<br>**dos.rate max. ml/min** | Type of start volume.<br>Volume for *absolute* start volume.<br>Factor for *relative* start volume: factor * smpl size.<br>Dosing rate for start volume. | abs., rel. OFF<br>0...999.999 ml<br>0... ±999 999<br>0.01...150 ml/min, OFF |
| **pause 0 s** | Waiting time, i.e. after start volume. | 0...999 999 s |
| **meas.input: 1** | Measuring input for pH and U. | 1, 2, diff. |
| **temperature 25.0 °C** | Temperature. | -170.0...500.0 °C |
| **>stop conditions** | **Stop conditions for titration** | |
| **stop V: abs.**<br>**stop V 99.99 ml**<br>**factor 999999** | Type of stop volume.<br>Volume for *absolute* stop volume.<br>Factor for *relative* stop volume: factor * smpl size. | abs., rel., OFF<br>0.00...9999.99 ml, OFF<br>0.. ±.999 999 |
| **stop pH OFF** | Stop at measured value. | pH: 0.00...±20.00, OFF<br>U: 0... ±2000 mV, OFF |
| **stop EP 9** | Stop after a number of EP's have been found. | 1...9, OFF |
| **filling rate max. ml/min** | Filling rate. | 0.01...150 ml/min, max. |
| **>statistics** | **Statistics calculation** | |
| **status: OFF**<br>**mean n= 2**<br>**res.tab: original**<br>**delete n= 1** | Status of statistics calculation.<br>Number n of single values for statistics.<br>Result table for statistics calculation.<br>Delete data from sample number n. | ON, OFF<br>2...20<br>original, delete n, delete all<br>1...20 |
| **>evaluation** | **EP evaluation/recognition** | |
| **EPC 5** | Endpoint criterion. | DET 0...200<br>MET pH: 0.10...9.99<br>U: 1...999 mV |
| **EP recognition: all** | Recognition of EP's which fulfill the EP criterion. If "window" is selected, lower and upper limits of windows are inquired. | all, greatest, last, window, OFF |
| **Fix EP1 at pH OFF** | Interpolation of volume at a given measured value (→ C5X). | pH: 0.00... ±20.00, OFF<br>U: 0... ±2000 mV, OFF |
| **pK/HNP: OFF** | Evaluation of pK or half neutralization potential (HNP → C6X). | ON, OFF |
| **>preselections** | **Preselections for the sequence** | |
| **req.ident: OFF** | Request of identifications after start of titration. | id1, id1 & 2, all, OFF |
| **req.smpl size: OFF** | Request of sample size after start of titration. | value, unit, all, OFF |
| **limit smpl size: OFF** | Limit control of sample size entries. | ON, OFF |
| **activate pulse: OFF** | Pulse output on I/O line L6. | ON, OFF |