732 IC Detector
733 IC Separation Center

Metrohm

Quick Reference Guide

8.732.1043

Status Messages in the Basic State

Display	*Meaning*
`+0.023 mS/cm  15.2 min`	**Measured value and current time** left: absolute conductivity (without sign) or auto-zero value (with sign) right: running time from start of program, from the last `"INJECT A"` or from the time the instrument was switched on
	Status messages for method
`method  XXXXXXXX`	Display of the method currently loaded in the working memory (`"XXXXXXXX modif."` = modified method; `"DEFAULT"` =standard method)
`1995-05-08  10:19:38`	**Date and time**
`full scale  1.00 mS/cm`	**Full-scale range** (operating range) Setting a new value with the help of the <FULL SCALE> key
`abs.cond.  473.5 mS/cm`	**Absolute conductivity**
	Status messages for 709 IC Pump
`pump ready`	Pump is switched on and ready (start with <PUMP R/S>)
`pump running  XX.X MPa`	Pump is running, the current pressure is displayed on the right (stop with <PUMP R/S>)
`stopped: XX-XX-XX  XX:XX`	Pump was stopped at the time indicated owing to violation of the shutoff limit
`pump not responding`	Pump is not connected or is not switched on
	Status messages for program
`prog.type cycle  no. XXX`	Display of program type (with `"cycle"`, the cycle number is also displayed)
`next step  XXX.X min`	Display of the time at which the next program step will be executed (`"ready"` = program is ready for a new start; `"---"` = program is inactive)

Auxiliary Function Keys

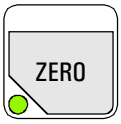
Selection
Selection of entry or unit options for dialog items followed by a colon `":"` or selection of the status message in the basic state

Clearing
Deletes displayed parameter values and variables and overwrites them with the default values

Exit
Exit from rolling inquiries, print processes and error messages; return to next higher program level

Confirmation
Confirms existing or newly-entered parameter values

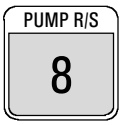
Initiating Functions



Switch on auto-zero
Automatically sets current conductivity to zero. The compensated conductivity value appears in the display; the green LED lights up on the key. Every repeated keystroke sets the measuring signal back to zero.

Switch on marking
Every keystroke sets a marking signal of approx. 10% of the full-scale range.

Switch off auto-zero
Switch off the auto-zero function. The absolute conductivity appears once again in the display; the green LED on the <ZERO> key goes out.



Start and stop pump
The 709 IC Pump is started or stopped by pressing this key (corresponds to the key <PUMP R/S> on the 709 IC Pump).

Setting Parameters

Parameters
Settings for the conductivity detector
Settings for analog output
Settings for graphics plots
Settings for the 709 IC Pump

Display	*Initial Value*	*Entry Range*	*Meaning*
>PARAM/detector			**Settings for the conductivity detector**
range:	**1.00 mS/cm**	100,200,500 µS/cm 1,2,5,10 mS/cm	Measuring range
full scale:	**1.00 mS/cm**	0.05 µS/cm...10 mS/cm	Full-scale range (operating range, dependent on measuring range chosen)
temp.coeff.:	**2.5 %/°C**	1.5,2.5 %/°C	Temperature coefficient for cations (1.5%/°C) or anions (2.5 %/°C)
>PARAM/analog output			**Settings for analog output**
polarity:	**+**	+,-	Polarity of the output signal
offset:	**0 %fs**	0,10,50 %fs	Zero-point offset in % of full-scale range
damping:	**off**	on,off	Damping
>PARAM/Plot			**Settings for graphics plots**
auto start:	**off**	on,off	Automatic start of the graphics plot with every "INJECT A"
time interval	**1.0 s**	0.4...99999 s	Time interval for graphics plot
time scale	**10.0 mm/min**	0.1,0.2,0.5,1,2,5,10, 20,60,120 mm/min	Time scale (paper speed) Automatic rounding off to preset value
time scale label:	**rel**	rel,abs	Labelling the time axis with relative or absolute time
stop time	**off min**	1...999 min,off	Stop time for graphics plot (switch off with <CLEAR>)
left:	**0.000 mS/cm**	-2000...2000 µS/cm -2000...2000 mS/cm -2...2 S/cm	Left boundary for conductivity axis (select the unit with <SELECT>)
right:	**10.00 mS/cm**	-2000...2000 µS/cm -2000...2000 mS/cm -2...2 S/cm	Right boundary for conductivity axis (select the unit with <SELECT>)
>PARAM/709 IC Pump			**Settings for the 709 IC Pump**
flow	**0.50 mL/min**	0.01...5.00 mL/min	Flow rate
Pmax	**10.0 MPa**	0.1...50 MPa	Maximum shutoff pressure
Pmin	**0.0 MPa**	0.0...50 MPa	Minimum shutoff pressure ("0.0" = no shutoff pressure)
flow corr.	**1.00**	0.90...1.10	Correction factor for flow rate

Full Scale
Direct choice of the full-scale range

Display	*Initial Value*	*Entry Range*	*Meaning*
full scale	**1.00 mS/cm**	0.05 µS/cm...10 mS/cm	Full-scale range (operating rage, dependent on the measuring range chosen). Selection of the value (blinking) with the help of the <←>, <→> and <ENTER> keys.

Methods

METHOD 9

Method
Recall method
Store method
Delete method

Display	*Initial Value*	*Entry Range*	*Meaning*
>METHOD/recall			**Recall method**
name:	**DEFAULT**	DEFAULT,XXXXXXXX	Select a method ("DEFAULT" = standard method)
>METHOD/store			**Store method**
name:	**XXXXXXXX**	8 ASCII characters	Enter or select a method name
overwrite XXXXXXXX?		<ENTER>,<QUIT>	Confirm with <ENTER>, abort with <QUIT>
>METHOD/delete			**Delete method**
name:	**XXXXXXXX**	XXXXXXXX	Select a method which is to be deleted
delete XXXXXXXX?			Confirm deletion with <ENTER>, abort with <QUIT>

Programming

PROGRAM 6

Process programming
General program parameters
Edit program (20 program time steps max. each with 14 program points max.)
Delete program

Display	*Initial Value*	*Entry Range*	*Meaning*
>PROGRAM/parameters			**General program parameters**
type:	**cycle**	cycle,remote,inject	Program type: `cycle` Loop program, started by <PROG R/S>/remote `remote` Single program, only started via remote `inject` Single program, only started with <INJECT A>
number of cycles	**1**	1...999	Number of cycles for loop programs
status:	**disabled**	enabled,disabled,test	Program status ("disabled"= program start impossible)
>PROGRAM/edit			**Edit program**
time:	**x.x min**	0.0...999.9 min	Select an existing program step or enter a new one
>PROGRAM/edit	**XXX.X min**		**Edit program points** ("---" = no action)
flag:	**---**	---,return,reset,end	Set a program flag: `return` go back to the beginning of a loop program `reset` set all parameters back to their starting value `end` end of the program
FS change:	**---**	---,on	Change full-scale range
range:	**100 mS/cm**	100,200,500 µS/cm 1,2,5,10 mS/cm	Reset measuring range (only possible if "FS change = on")
full scale:	**100 mS/cm**	0.05 µS/cm...10 mS/cm	Reset full-scale range (operating range) (only possible if "FS change = on")
zero:	**---**	---,on,off	Switch auto-zero function on/off
polarity:	**---**	---,+,-	Change the polarity of the output signal
mark:	**---**	---,on	Trigger a marking signal
valve A:	**---**	---,fill,inject	Switch valve A into position "FILL" or "INJECT"
valve B:	**---**	---,fill,inject	Switch valve B into position "FILL" or "INJECT"
suppressor:	**---**	---,step	Switch the suppressor module
remote	**********	*,0,1	Set the remote output lines 1…8 (from left to right) to "*" (unchanged), "0" (off, inactive, open) or "1" (on, active, 0 V)

pump R/S: ---	---,on,off	Switch the 709 IC Pump drive on/off
flow --- mL/min	---,0.01...5.00 ml/min	Change the flow rate of the 709 IC Pump
Pmax --- MPa	---,0.1...50.0 MPa	Change the max. shutoff pressure (0.1 MPa = 1 bar)
Pmin ---	---,0.0...50.0 MPa	Change the min. shutoff pressure ("0.0" = no disconnecting pressure)
>PROGRAM/delete all		**Deletion of all program steps**
delete all?	<ENTER>,<QUIT>	Confirm deletion with <ENTER>, abort with <QUIT>

Start/stop program

The program status is indicated by the green LED in the key:

LED out	Program inactive (program can only be started when the program parameter "PROGRAM/parameters/status" is set to "enabled")
LED on	Program active (program can be started)
LED blinking	Program is running (program can be stopped with <PROG R/S>)

Event programming

Enter new events (4 events max.)
Edit events (14 program points max.)
Delete events

Display *Initial Value*	*Entry Range*	*Meaning*
>EVENT/new		**Enter new event**
format: date	date,daily	Event format
event:YY-MM-DD HH:MM:SS	YY-MM-DD (date) HH:MM:SS (time)	Date and time for single event or only time for daily event
EVENT YY-MM-DD HH:MM:SS		**Edit program points for event**
parameters		The program points are identical to those under the <PROGRAM> key (exception: no "flag" parameter). Additional parameter:
prog R/S: ---	---,on,off	Start/stop loaded program
>EVENT/edit		**Edit existing event**
event:YY-MM-DD HH:MM:SS	read only	Select an event
EVENT YY-MM-DD HH:MM:SS		**Edit program points for event**
parameters		see above
>EVENT/delete		**Delete individual event**
event:YY-MM-DD HH:MM:SS	<ENTER>,<QUIT>	Confirm deletion with <ENTER>, abort with <QUIT>
>EVENT/delete all		**Delete all events**
delete all?	<ENTER>,<QUIT>	Confirm deletion with <ENTER>, abort with <QUIT>

Data Output

Start graphics plot

Output of the measured value curve on an external printer. The plot parameters are entered under <PARAM>. Abort the graphics plot with <QUIT>.

Measured value output

Output of individual measured values or start of continuous measured value output on an external printer or PC. The parameters for the measured value output are entered under <CONFIG>. Abort the measured value output with <QUIT>.

Report output

Report output on an external printer or PC.
Abort report output with <QUIT>.

Display *Initial Value*	*Entry Range*	*Meaning*
report: all	all,config,event, method,method list, param,program,pump	Select report with <SELECT>

Basic Settings

CONFIG 7

Configuration

Settings for the conductivity detector, settings for printer, settings for measured value printout, general instrument settings, settings for the RS232 interface, settings for the "709 IC Pump" interface, settings for 733 IC Separation Center

Display	*Initial Value*	*Entry Range*	*Meaning*
>CONFIG/detector			**Settings for the conductivity detector**
thermostat:	**35 °C**	25,30,35,40,45 °C, off	Operating temperature of the conductivity measuring cell (switch off thermostating with <CLEAR>)
'zero' unit:	**mS/cm**	µS/cm,%fs,mV	Unit for the display of the auto-zero value
cell constant	**16.7 /cm**	13.0...21.0 /cm	Cell constant of the conductivity measuring cell
>CONFIG/printer			**Settings for external printer**
id.1		18 ASCII characters	Identification 1 for first line of the print header
id.2		18 ASCII characters	Identification 2 for second line of the print header
print header:	**once**	once,always,off	Printing of the print header
date&time:	**on**	on,off	Printing date and time in the print header
send to:	**IBM**	IBM,Epson,Seiko, Citizen,HP	Selection of character set / printer type
>CONFIG/print meas.value			**Settings for measured value printout**
print crit.:	**immed.**	immed.,time,off	Criterion for measured value printout
time interval	**1.0 s**	0.4...99999 s	Time interval for measured value printout
stop time	**off min**	1...999 min,off	Stop time for measured value printout
date&time:	**off**	on,off	Print date and time for every measured value
>CONFIG/auxiliaries			**General instrument settings**
run number	**0**	0...999,off	Run number, automatically increased by +1 after every determination (switch off with <CLEAR>)
number of cycles	**1**	1...999	Number of cycles for loop programs (can be changed in a running program)
>CONFIG/aux/event			**Setting for events**
enabled in program:	**off**	on,off	Perform events in a program
date	**YYYY-MM-DD**	YYYY-MM-DD	Current date
time	**HH:MM:SS**	HH:MM:SS	Current time
dialog:	**english**	english,deutsch, francais,español	Dialog language
device label		8 ASCII characters	Device label
program	**732.0012**	read only	Number of the program version
>CONFIG/aux/beeper			**Settings for the beeper**
status:	**on**	on,only error,off	Status of the beeper
repeat time	**60 s**	5...999 s,off	Repeat time for beeper until confirmed by <QUIT> in the case of error messages (switch off with <CLEAR>)
>CONFIG/RS settings			**Settings for the RS232 interface**
baud rate:	**9600**	9600,4800,2400, 1200,600,300	Data transmission rate (baud rate)
data bit:	**8**	7,8	Data bits
stop bit:	**1**	1,2	Stop bits
parity:	**none**	none,odd,even	Parity

Display *Initial Value*	*Entry Range*	*Meaning*
handshake: HWs	HWs,HWf,SWchar, SWline,none	Handshake
RS control: on	on,off	Switch on/off data reception via RS232 interface
>CONFIG/RS settings 709		**Settings for the second RS232 interface "709 IC Pump"**
connected: printer	printer,off	Connection when operating without 709 IC Pump
baud rate: 9600	9600,4800,2400, 1200,600,300	Data transmission rate (baud rate)
data bit: 8	7,8	Data bits (only appears when a printer is connected)
stop bit: 1	1,2	Stop bits (only appears when a printer is connected)
parity: none	none,odd,even	Parity (only appears when a printer is connected)
handshake: HWs	HWs,HWf,SWchar, SWline,none	Handshake (only appears when a printer is connected)
>CONFIG/733 IC Sep.Cent.		**Settings for 733 IC Separation Center**
valve A	read only	Display of the configuration (according to instrument type)
control: no restriction	no restriction, 732 only	Control of the 733 IC Separation Center without restriction or only by the 732 IC Detector
>CONFIG/733/valve A		**Settings for injection valve A**
status inject	read only	Display of the valve setting ("fill", "inject" or "undefined")
trigger: inject	inject,fill	Switching of the valve
>CONFIG/733/valve B		**Settings for injection valve B**
status inject	read only	Display of the valve setting ("fill", "inject" or "undefined")
trigger: inject	inject,fill	Switching of the valve
>CONFIG/733/Suppressor		**Settings for the suppressor module**
auto step: fill	fill,inject,off	Automatic triggering of "step"
Status in position	read only	Display of the suppressor position ("in position" or "undefined")
trigger: ---	---,step	Switching the suppressor ("step"), no action ("---")

Switch on + 

Set Up
Setting the remote output lines
Arrangement of the remote input lines
Setting general graphics parameters
Setting the peripherals 733 and 709

Display *Initial Value*	*Entry Range*	*Meaning*
>SETUP/output		**Setting the remote output lines**
remote 00000000	0,1	Setting the remote output lines 1…8 (v.l.n.r.) to "0" (off, inactive, open) or "1" (on, active, 0 V) when the instrument is switched on
>SETUP/input assign	1...15	**Assignement of the remote input lines**
>SETUP/graphics		**General graphics parameters**
grid: off	on,off	Grid lines for graphics plot
frame: off	on,off	Frame for graphics plot
width 0.8	0.4...1.0	Relative width of the graphics printout
>SETUP/peripherals		**Setting the peripherals**
operation with 733: on	on,off	Operation with the 733 IC Separation Center
operation with 709: on	on,off	Operation with the 709 IC Pump