

pH Meter 713

8.713.1023 Enclosure for 8.713.1003 Instructions for Use

With series 13 and later, the 713 pH Meter is equipped with the new 5.713.0021 program. The following pages list the most important modifications and extensions in comparison with the old program version 5.713.0011 described in the 8.713.1003 Instructions for Use.

Modifications / Extensions

The format for the display and the entry of the date has been changed. The year can now be entered with four digits.

Display: ***** 713 pH Meter *****
1998-05-04 10:37:00

param	>calibration parameters cal.interval OFF h	<h4>Entry of a calibration interval</h4> <p><i>This inquiry appears only in the "pH" mode.</i></p> <p>This new parameter allows the entry of a time interval. When this time interval has expired the warning "cal.interval expired" appears in the LCD-display.</p> <p style="padding-left: 40px;">Input range: 1...999 h, OFF</p> <p>The calibration interval is stored together with the other calibration data for the electrode and the electrode-id. The warning can be acknowledged by pressing <quit>. When the electrode is re-calibrated, the timer is set to zero. If no new calibration is performed, the instrument checks every 10 minutes whether the calibration interval has expired, and again a warning appears in the display. The verification of the calibration interval is always carried out when the instrument is switched on or when the mode is changed.</p> <p>When further measurements are performed, although the calibration interval has expired, together with every measuring point report the warning "calibration interval expired" is printed.</p>
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param	<pre>>calibration parameters low lim.slope 0.97</pre>	<p>Lower limit for slope</p> <p><i>This inquiry appears only in the "pH" mode.</i></p> <p>This new parameter allows the entry of a lower limit value for the slope. If a smaller slope is found in the calibration, the calibration can be discarded.</p> <p>Input range: 0.001...9.999</p>
	<pre>>calibration parameters up lim.slope 1.05</pre>	<p>Upper limit for slope</p> <p><i>This inquiry appears only in the "pH" mode.</i></p> <p>This new parameter allows the entry of an upper limit value for the slope. If a larger slope is found in the calibration, the calibration can be discarded.</p> <p>Input range: 0.001...9.999</p>
	<pre>>calibration parameters low lim.pH(as) 6.40</pre>	<p>Lower limit for asymmetry pH</p> <p><i>This inquiry appears only in the "pH" mode.</i></p> <p>This new parameter allows the entry of a lower limit value for the asymmetry pH. If a smaller value is found for "pH(as)" in the calibration, the calibration can be discarded.</p> <p>Input range: 0.000...99.999</p>
	<pre>>calibration parameters up lim.pH(as) 8.00</pre>	<p>Upper limit for asymmetry pH</p> <p><i>This inquiry appears only in the "pH" mode.</i></p> <p>This new parameter allows the entry of an upper limit value for the asymmetry pH. If a larger value is found for "pH(as)" in the calibration, the calibration can be discarded.</p> <p>Input range: 0.000...99.999</p>
param	<pre>>electrode test report: line</pre>	<p>Report for electrode test</p> <p><i>This inquiry appears only in the "pH" mode.</i></p> <p>A new feature for this parameter is the selection of "line". Only the result (e.g. "excellent electrode") is outputted as a report for the electrode test.</p>

param	<pre>>preselections req.ident: OFF</pre>	<p>Automatic inquiry of the identification(s)</p>
		<p>This new parameter allows the entry of sample-specific identifications before every measured value printout initiated with <print>.</p>
		<p>Id1 Automatic inquiry of the identification "Id1".</p>
		<p>Id1 & 2 Automatic inquiry of the identifications "Id1" and "Id2".</p>
		<p>OFF No automatic inquiry.</p>
param	<pre>parameter >plot parameters</pre>	<p>New possibility of live plots</p>
		<p>A plot function is now available for all those applications of the 713 pH Meter that feature continuous measurement. The plot parameters depend on the mode selected. They are shown here for pH mode. You find additional plot parameter settings for the <config> key (see p. 6) and for "setup" (see p. 7).</p>
	<pre>>plot parameters left mar. 0.0 pH</pre>	<p>Left margin of the plotting area</p>
		<p>Left limit value for curve plot on an external printer.</p>
	<pre>>plot parameters right mar. 0.0 pH</pre>	<p>Right margin of the plotting area</p>
		<p>Right limit value for curve plot on an external printer.</p>
	<pre>>plot parameters left marg.T 20 °C</pre>	<p>Left margin of the plotting area for temperature</p>
		<p>Left limit value for additional curve plot of the temperature on an external printer (with attached temperature sensor).</p>
	<pre>>plot parameters right marg.T 20 °C</pre>	<p>Right margin of the plotting area for temp.</p>
		<p>Right limit value for additional curve plot of the temperature on an external printer (with attached temperature sensor).</p>

cal	<p>Buffer selection</p> <p>The two Metrohm buffers pH = 1 and pH = 13 are no longer available (cf. Table on page 7 of the 8.713.1003 Instructions for Use).</p> <hr/> <p>Error messages in the report</p> <p>The following two error messages can appear in the calibration report:</p> <p>manual stop Manual stop of the calibration.</p> <p>cal.data out of range Calibration data outside the predefined range.</p>															
<table border="1"> <tr><td>el.test</td></tr> <tr><td>0</td></tr> </table>	el.test	0	<p>New error message</p> <p>Instead of the error message "check buffer", the message "check buffer/electrode" appears.</p>													
el.test																
0																
print	<p>New header for measured value printout or plot</p> <p>The header now comprises the following parts:</p> <ol style="list-style-type: none"> 1. line: Instrument name, manufacturing number, program number 2. line: Date, time, run number (run number only with plot) 3. line: Basic method, method name, electrode identification 4. line: Sample identification "Id1" (if present) 5. line: Sample identification "Id2" (if present) <p>Example:</p> <table border="1" data-bbox="480 1128 1150 1330"> <tr><td>713 pH Meter</td><td>OP1/109</td><td>713.0021</td></tr> <tr><td>date 1998-04-01</td><td>time 09:45:09</td><td></td></tr> <tr><td>pH Meth.015</td><td>electr.id</td><td>pH-e1.12</td></tr> <tr><td>id1</td><td>drinking water</td><td></td></tr> <tr><td>id2</td><td>sample 34</td><td></td></tr> </table>	713 pH Meter	OP1/109	713.0021	date 1998-04-01	time 09:45:09		pH Meth.015	electr.id	pH-e1.12	id1	drinking water		id2	sample 34	
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<table border="1"> <tr><td>report</td></tr> <tr><td>9</td></tr> </table>	report	9	<p>New header for reports</p> <p>The header now comprises the following parts:</p> <ol style="list-style-type: none"> 1. line: Instrument name, manufacturing number, program number 2. line: Date, time, run number (The run number does not appear in the parameter, configuration and memory reports.) 3. line: Basic method, method name, electrode identification (This line does not appear in the parameter, configuration and memory reports.) <p>Example:</p> <table border="1" data-bbox="480 1758 1150 1877"> <tr><td>713 pH Meter</td><td>OP1/109</td><td>713.0021</td></tr> <tr><td>date 1998-04-01</td><td>time 09:45:09</td><td></td></tr> <tr><td>pH Meth.015</td><td>electr.id</td><td>pH-e1.12</td></tr> </table>	713 pH Meter	OP1/109	713.0021	date 1998-04-01	time 09:45:09		pH Meth.015	electr.id	pH-e1.12				
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config
1

Changed sequence of the parameter inquiry

The parameters are requested in the following sequence:

```
config
>printer
  id1
  id2
  print header:
  calibration report:
  character set:
>print meas.value
  order unchanged
>auxiliaries
  order unchanged
>RS232 settings
  order unchanged
```

Changes in the printer menu

Under ">printer" there is no longer an inquiry for the output of date and time. Date and time are printed automatically with every printout of the header (see <print> and <report> keys).

```
>printer
print header:    always
```

Output of a header in the measuring point report

The default setting is new "always".

- always With every measured value, the header is printed automatically.
- OFF No header is printed.
- once After switching on the instrument, the header is printed only once.

```
>printer
calibration report: OFF
```

Output of a calibration report with every measuring point report

This new parameter allows the automatic output of a short calibration report after every measured value printout.

- ON With every measured value, a short calibration report is printed automatically.
- OFF No output of a calibration report.

```
>printer
character set:    HP
```

Selection of the printer

A new feature of this parameter is the selection of "HP" for output on an HP printer (e.g. HP DeskJet or HP LaserJet). Output of graphics over more than one page is not possible in this mode.

<div style="border: 1px solid black; border-radius: 10px; padding: 2px; text-align: center;">config</div> <div style="border: 1px solid black; border-radius: 10px; padding: 2px; text-align: center; margin-top: 2px;">1</div>	<pre>>print meas.value print crit: immediate</pre>	New criterion for measured value printout: plot
		<p>immediate Measured value printout each time the <print> key is pressed.</p> <p>time Timed measured value printout in selectable time intervals.</p> <p>drift Measured value printout, after the drift condition has been met.</p> <p>plot Printout of the measured values in curve form.</p> <p>OFF The <print> key is not active.</p>
	<pre>>print meas.value time interval 4.0 s</pre>	Time interval for measured value printout for plot
		<p>Time interval between the measured value printout: 0.4 ... 99999 s (= 27 h 47 min)</p>
	<pre>>print meas.value time scale 60 s/cm</pre>	Scaling of the time axis for plot
		<p>Scaling of the time axis in s/cm.</p> <p>5, 10, 30, 60, 120, 180, ... 99960 s (= 27 h 46 min)</p> <p>The reciprocal of this quantity represents the paper feed in cm/s. (The effective paper feed depends on the printer used.)</p>
	<pre>>print meas.value time scale label: abs</pre>	Label of the time axis for plot
		<p>abs Label with absolute (current) time (e.g. "8:30").</p> <p>rel Label with relative time beginning at start of the curve plot (e.g. "2m40s" for 2 min 40 s).</p> <p>The label is outputted at every main division.</p>
	<pre>>print meas.value stop time OFF s</pre>	Stop time for measured value printout
		<p>Time until stop of the measured value printout:</p> <p>OFF no time limit (press <clear>)</p> <p>1 ... 99999 s (= 27 h 47 min)</p>

Switch on + config 1	***** 713 pH Meter ***** >graphics	Setup of plot parameters
	graphics grid: OFF	Grid lines for plot OFF No grid lines are drawn in when graphics are plotted. ON Dotted grid lines are drawn in when graphics are plotted.
	graphics frame: OFF	Frame for plot OFF On printout of the graphics, only the x and y axes are drawn in, but no frame. ON On printout of the graphics, a frame is drawn in.
	graphics width 0.8	Relative width of the graphical printout 0.4 ... 1.0 The width of the graphical printout must be matched to the attached printer.
	graphics length 1.0	Relative length of the graphical printout 0.4 ... 1.0 The length of the graphical printout must be matched to the attached printer.

Technical specifications:

Measuring error (Absolute at adjustment temperature):

Temperature ± 0.5 °C ± 1 digit in the -130 ... 500 °C range

Voltage ± 0.8 mV ± 1 digit