Metrohm
Ion analysis

780 pH Meter
781 pH/Ion Meter

The measure of all things

Flexible and easy to operate

The 780 pH Meter and the 781 pH/Ion Meter combine the highest Metrohm quality with advanced design.

pH Meter and Ion Meter
Metrohm's new pH meter generation offers numerous possibilities. In addition to the general functions for measuring pH, potential and temperature, the new pH meters boast features such as the optimized GLP-compliant electrode test as well as monitoring and service intervals.

With the 781 pH/Ion Meter you can determine ion concentrations at a level of comfort offered only by Metrohm.

801 Magnetic Stirrer on the 781 pH/Ion Meter.

The 804 Ti-Stand with 802 Rod Stirrer offers an alternative way of stirring.

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Stirrers

Not only the pH meters are new but also the stirrers have been optimized. They are now directly controlled by the pH meter via the MSB interface (MSB = Metrohm Serial Bus). The stirring speed is set on the pH Meter. This assures that measurements are always carried out under the same conditions.

You can choose between the 801 Magnetic Stirrer and the 802 Rod Stirrer.

Electrodes

Metrohm offers a large range of pH and ion-selective electrodes. Please find an overview of our electrode program under www.metrohm.com and additional information on pH measurement under www.ph-measurement.com.

The package of the 780 pH Meter contains the 6.0232.100 Ecotrode pH electrode, that of the 781 pH/Ion Meter the 6.0258.010 Unitrode pH electrode with integrated Pt 1000 temperature sensor.

Switch on and measure

Despite the many functions they offer, operation of the new pH meters is easy. After switching on the instrument you can immediately measure using the inherent standard parameters. The large display accommodates several lines. It provides an excellent overview and facilitates the necessary adjustments, which you can then store as your own method under a meaningful name.

Sample identification can consist of up to 15 ASCII characters. You have the option to attach a PC keyboard or – even more comfortable – to use a barcode reader for entering sample identifications.

Display of 780 pH Meter
with pH value in large characters.
Temperature, date and time are also displayed.

Practical quality control

Unique: GLP-compliant electrode test

For years Metrohm, as the only manufacturer worldwide, has offered pH meters with GLP-compliant electrode test. With the new pH meters you can carry out a test that is specially adapted to your electrode type, be it a pH electrode with aqueous, non-aqueous or gel electrolyte. The electrode test yields specific information such as response time, zero point or slope as well as an overall statement that informs you about the condition of the membrane and the diaphragm.

pH calibration with automatic buffer recognition

With the 780 pH Meter and the 781 pH/Ion Meter you can perform pH calibrations with up to 9 buffers. Calibrations are made easy by the sophisticated user guidance, automatic buffer recognition and evaluation. You can store the calibration data including curve under the corresponding electrode identification and view it any time.
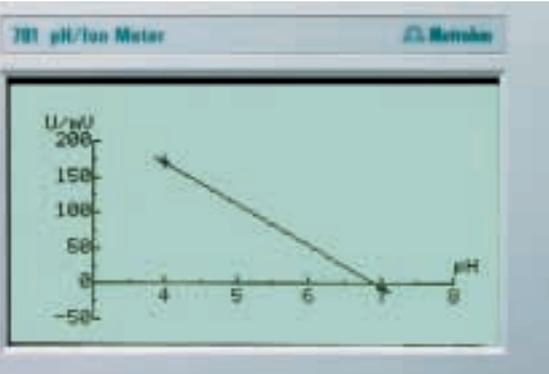
Should you wish to use buffers different from those stored in the instrument, you are free to do so. Just enter the values of your buffers, either for a given temperature or as a function of temperature.

Calibration line of a pH electrode.

User identification

Thanks to the user identification you can always find out, by viewing the report, who performed which determination and at what time. The user has also the possibility to confirm the results with his signature in the field provided for this purpose on the printout.

Monitoring intervals

Forgot validation? Calibration or service interval expired? With the new pH meters these are things of the past. Thanks to the integral monitoring functions you are alerted to the corresponding quality control tasks in time. The intervals can easily be adjusted to your specific requirements.

Each time the instrument is switched on it carries out an internal system diagnosis that ensures the correct functioning of the pH meter. To complete the documentation you can issue this instrument test as a system report.

Instrument test with 767 Calibrated Reference

It occasionally happens that the displayed measuring value appears to be untrustworthy. In these cases, the reference values supplied by the 767 Calibrated Reference will remove any doubts simply and rapidly by letting you gauge the instrument's condition. The Calibrated Reference is simply attached in place of the sensor to the instrument to be checked.

The 767 Calibrated Reference allows to check your instrument within the normal procedure, i.e. within established methods. This means that the operational sequences and the methods used are tested at the same time.
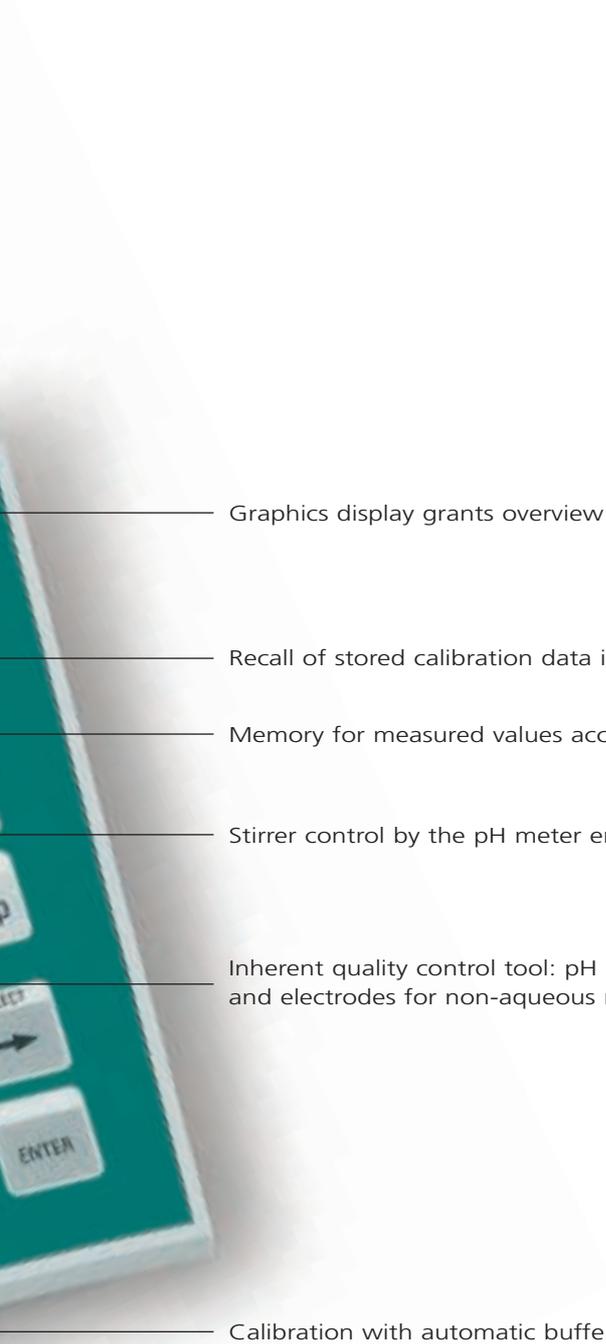
Checking the pH display of the 781 pH/Ion Meter
with the 767 Calibrated Reference.

Two outstanding instruments

Graphics display grants overview and facilitates operation

Recall of stored calibration data including calibration curve

Memory for measured values accommodates up to 100 data sets

Stirrer control by the pH meter ensures reproducible measuring results

Inherent quality control tool: pH electrode test for standard electrodes, gel electrodes and electrodes for non-aqueous media

Calibration with automatic buffer recognition, up to 9 calibration buffers

Measuring ion concentration by means of direct measurement, standard additions or sample additions. Automation using a 765 or 776 Dosimat turns calibrations and additions into child's play while at the same time improving precision.

Top-of-the-line ion meter

Easy and comfortable measuring of ion concentrations – a Metrohm exclusive
With the 781 pH/Ion Meter you can determine the content of different ions using ion-selective electrodes. The determinations are either performed by establishing calibration curves or by carrying out standard or sample additions. Both techniques can be automated with an attached 765 or 776 Dosimat. For the fully automatic standard addition you need only enter the concentration of your standard and the desired number of additions, the rest is taken care of by the pH/Ion Meter. Any name can be used for the determined species and the result unit is freely selectable.

Up to 19 standards can be used for calibrations. Evaluation of the calibration curves or of the additions is carried out automatically by the pH/Ion Meter.

You can obtain the following Metrosensor ion-selective electrodes from us:
• with crystal membrane: F^-, Cl^-, Pb^{2+}, Cu^{2+}, Ag^+, S^{2-}, CN^-, I^-, Br^-, Cd^{2+}, SCN^-
• with polymer membrane: Na^+, Ca^{2+}, NO_3^-, K^+, BF_4^-
• with glass membrane: Na^+

Application know-how included – in the Internet, under www.metrohm.com, you will find our Application Notes as well as the list of all our Application Bulletins.


Profitable automation
Whenever larger numbers of samples have to be processed, using a sample changer is advantageous. For the automated measurement of pH values we recommend to combine the 780 pH Meter with our 824 Easy Sample Changer. If you also wish to determine ion concentrations, for example the fluoride concentration in mouth rinses, you can use the 781 pH/Ion Meter with our 730 Sample Changer.

Please contact us, we will be pleased to advise you about the optimal adaptation of one of our sample changer systems for your application.

Determination of the ion concentration with the 781 pH/Ion Meter.
The 765 Dosimat performs the fully automatic standard additions
while the Custom DP40 printer documents the determination.

6.37 ppm

DIS C   2.100 ml

F⁻ standard 1000 ppm

5 mL

Metrohm

801 Stirrer

Metrohm

Metrohm
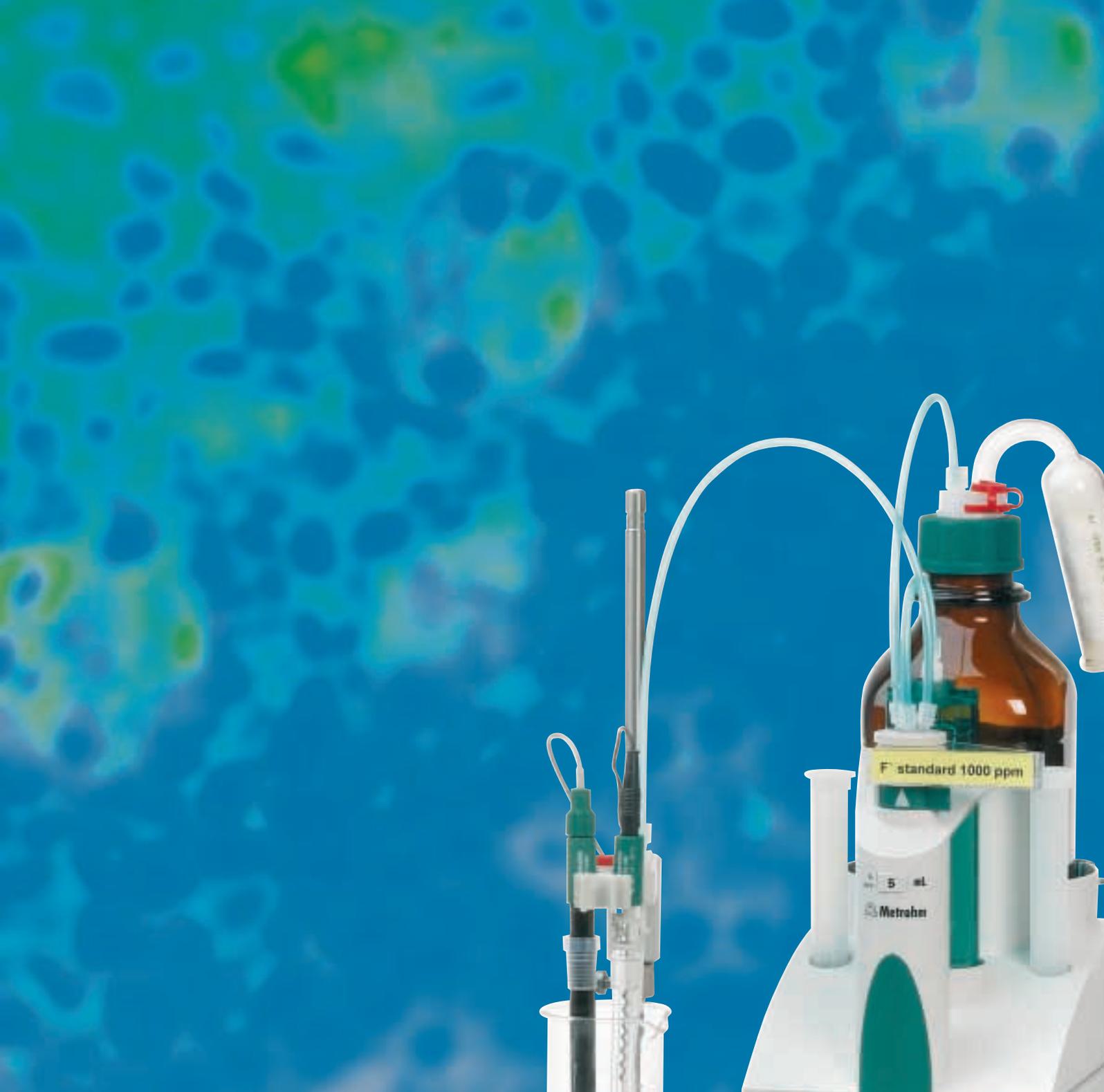
Comparison of two future-proof instruments

Measuring ranges	
pH	
Potential	
Temperature	
Pt 1000	
NTC	
Concentration	

Resolution	
pH	
Potential	
Temperature	

Concentration mode	
Automatic concentration calibration with Dosimat	
Automatic standard or sample addition with Dosimat	

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pH calibration (number of buffers)	
Automatic adjustment for the temperature characteristics of the stored buffer solutions	
Automatic buffer recognition	
Automatic temperature compensation	
Automatic self-diagnosis	
Automatic GLP-compliant electrode test for different types of pH electrodes	
Stability control (drift indicator)	
Simultaneous display of pH and temperature	
Electrode input (high impendance)	
Temperature measuring input for Pt 1000 and NTC	
Method memory	
Memory for 100 measured values including additional data	
GLP-compliant result printout	
Automatic monitoring functions (validation, service, calibration, diagnosis)	
User identification and field for signature on report	
Plot function for pH, mV, °C, concentration versus time (concentration with 781 only)	
Connection of printer or PC via RS 232C	
MSB connection (Metrohm Serial Bus)	
Connection for stirrer control	
Connection for PC keyboard and barcode reader	
«Remote» sample changer connection	
Output lines for limit value check	
Dialog guidance in the following languages	
Power supply 100...240 V, 50...60 Hz	

	780 pH Meter	781 pH/Ion Meter
	0...14 (±20.000)	0...14 (±20.000)
	±2200 mV	±2200 mV
	−150.0...+250.0 °C	−150.0...+250.0 °C
	−20.0...+250.0 °C	−20.0...+250.0 °C
		$10^{-38}...10^{+38}$
	0.001	0.001
	0.1 mV	0.1 mV
	0.1 °C	0.1 °C
		•
		•
		•
	1 to 9	1 to 9
	•	•
	•	•
	•	•
	•	•
	•	•
	•	•
	•	•
	1	1
	•	•
	•	•
	•	•
	•	•
	•	•
	•	•
	•	•
	•	•
	•	•
	•	•
	•	•
	Option	Option
	Option	Option
	English, German, French, Spanish	English, German, French, Spanish
	•	•
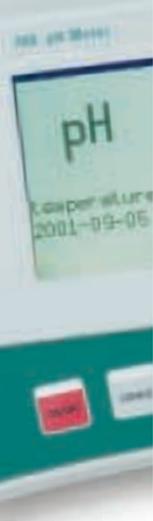
Ordering information, options

780 pH Meter
Top-level pH meter with graphics LCD screen for the user dialog in English, German, French or Spanish as well as for the display of results and calibration curves. pH calibration with up to 9 buffers, automatic buffer recognition, electrode test for different types of pH electrodes. Temperature measurement with Pt 1000 or NTC. Memories for methods and measured values; automatic monitoring functions, plot function for pH, mV, °C versus time.

2.780.0010   pH Meter including 6.0232.100 Ecotrode pH electrode plus stand rod with base and electrode holder as well as line adapter 100...240 V, 50...60 Hz, 12 V DC

781 pH/Ion Meter
Instrument for measuring pH values and determining ion concentrations at the highest level of comfort; with graphics LCD screen for the user dialog in English, German, French or Spanish as well as for the display of results and calibration curves. pH calibration with up to 9 buffers, automatic buffer recognition, electrode test for different types of pH electrodes. Concentration mode, setting up of calibration curves and standard or sample additions automatable with Dosimat. Temperature measurement with Pt 1000 or NTC. Memories for methods and measured values; automatic monitoring functions, plot function for pH, mV, °C, concentration versus time.

2.781.0010   pH/Ion Meter including 6.0258.010 Unitrode pH electrode and stand rod with base and electrode holder as well as line adapter 100...240 V, 50...60 Hz, 12 V DC

Options
2.801.0010   801 Magnetic stirrer
2.804.0010   804 Ti Stand
2.802.0040   802 Rod Stirrer
2.765.0010   765 Dosimat with 20 mL Exchange Unit
2.776.0010   776 Dosimat with 20 mL Exchange Unit
6.2148.010   Remote Box for attaching a 25-pin Remote connecting cable and an MSB connecting cable
6.2138.010   Connecting cable 780/781/Remote Box – 765 Dosimat
6.2136.000   Adapter cable for attaching 776 Dosimat to 6.2138.010 cable

2.140.0200   Custom DP40-S4N impact printer
6.2134.110   Connecting cable 780/781 – Custom printer

6.1110.100   Pt 1000 temperature sensor with plug-in head G
6.2104.140   Cable for 6.1110.100, length 1 m, with two 2 mm plugs

6.2307.100   Buffer solution pH = 4, ready-to-use, 500 mL
6.2307.110   Buffer solution pH = 7, ready-to-use, 500 mL
6.2307.120   Buffer solution pH = 9, ready-to-use, 500 mL

Ω Metrohm
I o n   a n a l y s i s