

PHM250 Ion Analyzer



- ✓ 16 easy-to-edit pH, mV and ion concentration methods
- ✓ Dual-channel electrode inputs
- ✓ 9-point pH & ISE calibration
- ✓ Standard and Analate Addition/Subtraction
- ✓ RS232C ports for printer/PC and sample changer

PHM250

The PHM250 Ion Analyzer combines pH and ISE testing on the same meter making it ideal both for routine and advanced pH, mV and ion concentration measurements.

The PHM250 is part of MeterLab[®], Radiometer Analytical's complete range of measuring equipment for accurate and reliable pH, ion and conductivity measurements.

Built-in convenience

Designed for maximum versatility, the PHM250 allows you to select and edit up to 16 pH, mV or ion concentration measurement methods to fit your specific tasks.

Each method contains all the information necessary for your application, for example electrode type, calibration procedure, result acceptance criteria and specific alarm limits.

Data entry is via a numeric keypad and pH results are shown to 3 decimal places on the clear 2 x 16-character alphanumeric display.

The dual-channel electrode inputs and the method link facility add to the performance of the PHM250 making it easy to perform two different measurements in the same sample without disconnecting the electrodes. This feature also allows differential measurements.

Connection of a sample changer lets you perform unattended sample batch analysis.

Multi-point calibration

All ion-selective electrodes exhibit non-linear response at low concentration levels, so for accurate results the PHM250 features a "best fit" curve calibration on up to 9 calibration standards.

In addition, the PHM250 can perform a pH calibration using up to 9 buffer solutions. The calibration resulting from this linear regression is ideal for high-precision pH measurement procedures.

You can choose from three pH calibration modes: **AUTO**matic recognition of IUPAC standards, Technical or 4-7-10 Series buffers, **FREE** adjustment of the buffer value or use of **FIXED** buffer values.

Ease of measurement

Ion concentration measurements can be performed directly based on a calibration or by using one of four addition techniques. Up to 9 additions can be made during either standard or analate addition/subtraction measurements. When multiple additions are used, there is no need to calibrate as the meter calculates the electrode's sensitivity during the procedure.

Direct measurements can be performed manually with the stability indicator, automatically with AUTOREAD or continuously with printing at set intervals.

GLP functions

The PHM250 provides you with all the information you need to keep close track of your measurements. It also prompts you as soon as a new calibration is required.

For each method up to 9 sample measurements and 9 calibration results are stored in the GLP table. For an overview, an easy-to-read table can be obtained at the touch of the Print key.

Specifications

Measurement procedures

pH, mV and ion concentration reading with sliding **stability indicator**

AUTOREAD of pH, mV and ion concentration: the result is locked on display when stability criterion and/or maximum accept time reached

pH/mV/ion concentration reading and printing **at intervals**

Standard and analate addition/subtraction measurements with up to 9 additions

The user is prompted to make the addition after the measurement has been accepted

Min. and max. alarms can be set for pH, mV concentration and temperature

pH calibration modes

One, two or multi-point calibration (up to 9)

AUTO recognition of buffers: IUPAC standards (DIN 19266): pH 1.679, 4.005, 7.000, 10.012 and 12.45 *or*

Technical buffers (DIN 19267): pH 1.09, 4.65 and 9.23 *or*

4-7-10 Series: pH 4.00, 7.00 and 10.00

Calibration with **FIXED** buffers selected from the above buffers and IUPAC pH 3.557, 6.865, 7.413 and 9.180

FREE entry of the buffer value

The actual pH value of the buffer is automatically computed according to the temperature measured or manually entered in AUTO and FIXED mode

ISE calibration

One, two or multiple-point calibration (up to 9). E°, sensitivity and blank value determined from the non-linear calibration curve

Concentration units

mol/l, mmol/l, μ mol/l, g/l, mg/l, M, mM, % and ppm

Electrode requirements

(Autocal)

Sensitivity: 95 to 102%

ZeropH: 5.800 to 7.500 pH

GLP functions

Complete printouts with date, time, instrument ID and, if selected, calibration data used

Last 9 calibration results and last 9 sample results stored for each of the 16 methods

Measuring ranges

pH: -9.000 to +23.000

mV: -1999.9 to +1999.9

°C: -9.9 to +99.9

Conc.: 0.001×10^{-9} to 999.9×10^9

Resolution

pH: 0.001

mV: 0.1

Conc.: 0.5% (monovalent ions)
1% (divalent ions)

°C: 0.1

Input accuracy

pH: ± 0.002 pH

mV: max. ($\pm 0.1\%$, ± 1 LSD)

Conc.: $\pm 0.5\%$ (monovalent ions)
 $\pm 1\%$ (divalent ions)

°C: $\pm 0.5^\circ\text{C}$

Electrode inputs

Single/combined glass, metal or ion-selective electrode (2 BNC plugs)
Reference electrode (2 banana plugs)
Temperature sensor (CINCH plug)

Electrode input resistance

$> 2 \times 10^{12} \Omega$

Terminal current

< 0.5 pA at 25°C ambient

Input/Outputs

RS232C insulated port for printer or PC. 9-pin D-connector

RS232C insulated port for SAC80/90 Sample Changer

Analogue recorder output

Display

2 x 16-character alphanumeric LCD display

Languages

English + German or French

Finish

Chemical resistant, splash-proof cabinet

Power requirements

115/230 Vac -18/+15%

47.5 to 63 Hz, 8 VA

Electromagnetic compatibility

EMC qualified

Ambient temperature

5 to 40°C

Relative humidity

20 to 80%

Dimensions (H x W x D)

8 x 28.5 x 20 cm

Weight

1.9 kg

Order Information

PHM250 Ion Analyzer

English/French

230 V version

R21M025

115 V version

R21M026

English/German

230 V version

R21M033

- when you need to be sure...

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