

PHM240 pH/Ion Meter



- ✓ 6 easy-to-edit methods
- ✓ 3 pH calibration modes
- ✓ 3 pH, mV, ion concentration measurement modes:
 - AUTOREAD
 - At intervals
 - Stability indicator
- ✓ RS232C ports for printer/PC and sample changer

PHM240

The PHM240 pH/Ion Meter combines advanced features with user convenience making it equally suitable for high-precision research analysis and routine measurement of pH, mV and ion concentration.

The PHM240 is part of MeterLab®, Radiometer Analytical's complete range of measuring equipment for accurate and reliable pH, ion and conductivity measurements including pH and ion-selective electrodes, certified buffer solutions, sample stand and sample changers.

Convenient operation

The PHM240 is designed for maximum simplicity. Data entry is via a numeric keypad and pH results are shown to 3 decimal places on the 2 x 16-character alphanumeric display. Clear-text messages guide you through method editing and operation.

Optimal flexibility is provided by 6 methods which can be individually edited 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.

The PHM240 can be connected to a sample changer for unattended sample batch analysis. In addition, it has built-in interfaces for printer/PC and a recorder.

Ease of calibration

The PHM240 offers a choice of 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. In **AUTO** and **FIXED** mode the actual pH value of the buffer is automatically computed according to the temperature measured or entered.

A **multi-point** calibration can be performed using up to 9 buffer solutions. The calibration resulting from this linear regression is ideal for high-accuracy pH measurement procedures.

Ion concentration measurements can be performed directly based on a calibration using 1 or 2 standards.

AUTOREAD

Using **AUTOREAD**, the pH, mV or ion concentration is locked on the display as soon as the stability criterion is reached ensuring excellent reproducibility. Measurements can also be performed continuously and printed out at intervals defined by the user.

The result can be read directly from the live display using the sliding stability indicator.

GLP functions

The PHM240 provides you with all the information you need (calibration data, temperature, measuring time etc.) to keep close track of your measurements and fully comply with Good Laboratory Practice. In addition, it 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: result is locked on display when stability criterion and/or maximum accept time are reached

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

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 modes

ISE calibration

Calibration on 1 or 2 standards

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 for each of the 6 methods

Measuring ranges

pH: -9.000 to +23.000

mV: -1999.9 to +1999.9

Conc.: 0.001×10^{-9} to 999.9×10^9

$^{\circ}$ C: -9.9 to +99.9

Resolution

pH: 0.001

mV: 0.1

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

$^{\circ}$ 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)

$^{\circ}$ C: $\pm 0.5^{\circ}$ C

Electrode inputs

Single or combined, glass, metal or ion-selective electrode (BNC plug)

Reference electrode (banana plug)

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 and 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

PHM240 pH/Ion Meter

230 V version

R21M019

115 V version

R21M020

- when you need to be sure...

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Approved Quality System

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