

pH Meters

The term “pH” denotes the negative logarithm of the hydrogen ion, H^+ , activity in aqueous solutions (activity and concentration are equal only in dilute solutions):

$$pH = -\log (H^+)$$

For pure water at 75°F (24°C) the hydrogen ion activity (H^+) is 10^{-7} moles/liter and $pH=7$. This system is termed “neutral” because the hydroxyl ion activity (OH^-) is also 10^{-7} moles/liter. In aqueous systems at 24°C the ion product, (H^+) x (OH^-), is 10^{-14} (a constant). Consequently, an increase in H^+ denotes a like decrease in (OH^-). A change in pH of one unit indicates a ten-fold change in both (H^+) and (OH^-). Solutions with pH less than 7 are termed “acidic” and those with pH greater than 7 are termed “basic” or “alkaline.”

Field measurement of drilling fluid (or filtrate) pH and adjustments to the pH are fundamental to drilling fluid control. Clay interactions, solubility of various components and contaminants, and effectiveness of additives are all dependent on pH, as is the control of acidic and sulfide corrosion processes.

The recommended method for pH measurement of drilling fluid is with a glass electrode pH meter. This method is accurate and gives reliable pH values, being free of interferences if a high quality electrode system is used with a properly designed instrument. Rugged pH instruments are available that automatically temperature compensate the slope and are preferred over the manually adjusted instruments.

The FANN Lab Model Digital pH/Ion Meter is a high-quality, bench-type lab pH meter designed to measure the entire pH scale (0-14). This meter has a milli-volt range of +/-1000mV and easily converts from 115- to 230-volts AC power by use of a conveniently mounted switch. The unit provides accuracy and readability of 0.01 pH.

The automatic temperature compensation (ATC) range on this instrument runs from 0° to 100° Centigrade. The ATC probe (included with meter) plugs into the front panel of the meter and automatically adjusts the readout to measure temperature variations in the fluid. The analog recorder output may be continuously used in conjunction with a recorder to display and record the pH measurements.



Lab Model Digital pH/Ion Meter
Combination pH Probe
Soaker Bottle & Soaker Solution
Automatic Temperature Compensation (ATC) Probe

The Pocket pH Meter provides a practical alternative to pH Litmus paper. This easy-to-use instrument does the work of hundreds of rolls of indicator paper. With a resolution of 0.1 pH and accuracy of +0.1 pH, the Pocket pH Meter is just as reliable as many laboratory models. State-of-the-art electronics and an easy-to-read digital display make this pH Meter the ideal portable meter.

Pocket pH Meter, range 0 to 15 pH



The Digital pH Meter is easy to operate, rugged, portable and compact, measuring only 3" by 6". It is battery operated and has a 5/16" high LCD display that is easy to read in all lighting conditions. The meter is packaged in a rugged carrying case with one 9-volt alkaline battery, permanently sealed combination probe, pH 4, 7 and 10 buffer capsules, plastic buffer bottles, and a comprehensive manual.

Each Digital pH Meter is inspected and tested to provide reliable and trouble free operation. It is accurate and repeatable to +.02 pH and has solid state integrated circuitry with temperature stable components. The meter includes a standardizing knob for calibration and slope control, which matches the meter to the probe for optimum accuracy.



Portable Digital pH Meter

The meter operates with a range of 0 to 14 pH and has a complete line of accessories. With its low battery indicator, optional 115-volt and 230-volt AC adapters, and optional car adapter, the Digital pH Meter is ready for field and lab operation.

Order No. 209994—Lab Model Digital pH/Ion Meter, combination probe, soaker bottle w/solution, and Automatic Temperature Compensation (ATC) Probe

Order No. 209997—Portable Digital pH Meter with case, combination probe, one 9-volt alkaline battery, buffer capsules and buffer bottles

Order No. 210006—Digital Pocket pH Meter, ATC, Battery Operated

Fann Instrument Company offers a complete line of viscosity measuring instruments for use in testing drilling fluids in accordance with the following American Petroleum Institute publications:

API Recommended Practice 13B-1, ANSI/API 13B-1/ISO 10414-1,
API Recommended Practice 13B-2, & API Specification 13A